DRAFT

ENVIRONMENTAL ASSESSMENT

COPPER GULCH (CG CLAIM GROUP) - ROCK PEAK (WYNN CLAIMS)

PLAN OF OPERATIONS

Cabinet Ranger District
Kootenai National Forest
Sanders County, Montana

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LEAD AGENCY: USDA, Forest Service
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Trout Creek, MT 59874

Abstract:

The Copper Gulch-Rock Peak Mineral Exploration Program is a proposal of Pacific Coast Mines, Inc. (U.S. Borax and Chem. Corp.) to develop a two-year exploratory drilling program located within and immediately adjacent to the Cabinet Mountains Wilderness Area. Proposed drilling operations would begin in the Copper Gulch area with 2 to 4 holes drilled on 4 sites during the period June 1 to July 31, 1982. These operations would be conducted simultaneously with those proposed by Pacific Coast Mines near Squaw Peak within the Scotchman Peaks Proposed Wilderness Area. The Squaw Peak proposal will be evaluated via a separate Environmental Assessment.

When activities in these two areas have been completed, operations near Rock Peak would be initiated. Pacific Coast Mines proposes to drill 2 to 5 holes on as many as 5 sites during the operating period of June 1 to September 30, 1982. The total drilling program for the Copper Gulch-Rock Peak areas during 1982 proposes 4 to 9 drill holes on 9 sites. Depending on the results obtained from the initial drilling program, an additional 10 to 14 holes are proposed for the 1983 operating season. Specific sites planned for 1983 would be submitted as an addendum to the original plan of operations prior to the operating season. The drill rigs, equipment and crews would be flown into the Wilderness Area by means of helicopter. Strict flight corridors, and daily and seasonal flight restrictions would be placed on use of the helicopter.

Most of the measures incorporated to reduce adverse impacts are associated with protection of the wilderness resource and the grizzly bear, a nationally threatened wildlife species. The Grizzly Bear Cumulative Effects Process as prepared by the Kootenai Forest Cumulative Effects Task Force was the basis for evaluating the impacts of this proposed project and existing projects within Bear Unit #5 on the grizzly bear. The analysis indicates a threshold has been reached in terms of the amount of habitat freely available to the grizzly bear. Within a bear unit covering approximately 100 square miles it was determined that a minimum of 70 square miles of freely available habitat must be maintained to support one female grizzly bear. At present, due to existing projects within Bear Unit #5, the total 103 square mile habitat has been reduced to 64 square miles. Analysis of the proposed projects indicates that if conducted as proposed there will be an additional reduction of 1 square mile of habitat. Through modification of the proposal the present level of habitat can be maintained. Implementation of proposed compensation measures will provide approximately an additional 4 square miles of freely available grizzly habitat (see APPENDIX K, Biological Evaluation).

Some unavoidable impacts would occur for the duration of the project. These impacts include loss of wilderness experience, a reduction in viewing quality, and temporary displacement of certain wildlife species.

The responsible official is William Morden, Forest Supervisor, Kootenai National Forest, Libby, Montana.

Prepared by: _____ _____
Minerals and Lands Forester Date

Recommended by: _____ _____
District Ranger Date

Responsible Official: _____ _____
Forest Supervisor Date

SUMMARY

Existing Situation

The Copper Gulch-Rock Peak mineral exploration project is a proposal of Pacific Coast Mines, Inc. (U.S. Borax and Chem. Corp.) to conduct a two-year (1982 and 1983) geologic core drilling program on unpatented claims within and adjacent to the Cabinet Mountains Wilderness Area. These claims are on the Kaniksu National Forest which is administered by the Kootenai National Forest (see Project Vicinity Map, AFFECTED ENVIRONMENT section).

The claim blocks in each of the areas on which drilling operations have been proposed are identified as follows:

1. Copper Gulch (Cabinet Mountains Wilderness Area) - CG Claim Group, Pacific Coast Mines, Inc. as claimant.

2. Rock Peak (Cabinet Mountains Wilderness Area) - Wynn Claims, Pacific Coast Mines, Inc. as claimant.

The proponent has submitted an operating plan for each of the areas with a proposed maximum operating period of June 1 through September 30, 1982. The plans covering the two areas of operation for the 1982 drilling season consist of drilling 4 to 9 holes on as many as 9 sites. Depending on the results obtained from the initial 1982 drilling operation, an additional 10 to 14 holes are planned for the 1983 operating season. Pacific Coast Mines has proposed to submit a supplement to each plan of operations to cover the drilling program for the 1983 operating season.

In accordance with the Wilderness Act of 1964 all designated wilderness areas will be withdrawn from all forms of appropriation, as of December 31, 1983, except for valid claims within such areas existing on or before December 31, 1983. Consequently, Pacific Coast Mines has only two operating seasons to attempt to establish that discoveries of valuable minerals exist upon claims within the Wilderness.

The cumulative impacts of these two proposals for the 1982-1983 period of operation in addition to other on-going and proposed projects were considered in this analysis. A number of existing and proposed projects are located in nearby areas of essential grizzly bear habitat. An existing mineral exploration project in the Cabinet Mountains Wilderness is the Chicago Peak Project being conducted by ASARCO, Inc. Near Squaw Peak in the Scotchman Peaks Proposed Wilderness Area, Pacific Coast Mines has a proposed exploration project for the 1982-1983 operating season. Other existing mineral exploration projects in the Scotchman Peaks Proposed Wilderness Area have been proposed by Chevron Resources, Lynn Keith, and the Northwest Citizens for Wilderness Mining Co., Inc. Proposed timber sales within the vicinity of the proposed projects include the East Fork Bull River Timber Sale, Snake Face Timber Sale, Lost Girl Timber Sale, and Blue Fat Timber Sale. The Government Ridge Timber Sale is on-going within the vicinity of the proposed projects.

To assess the cumulative impacts of existing projects with the addition of the proposed mineral exploration projects, the Kootenai Forest Cumulative Effects Task Force was formed. Their findings were presented via the Grizzly Bear Cumulative Effects Process and referenced in assessing the impacts on the the grizzly bear resulting from the proposed exploration projects. The analysis process indicates impacts associated with existing activities within Bear Unit #5 have reduced freely available grizzly bear habitat from a total of 103 square miles to 64 square miles. This reduction presents an adverse effect in terms of the continued existence of the grizzly bear as the process identified 70 square miles as the minimum area of habitat required to support one female grizzly bear. Further, the analysis process determined there would be an additional loss in habitat of 1 square mile if the project was approved as proposed. This additional loss would be associated with activities proposed for the Rock Peak area.

In addition to cumulative impacts, including those involving the grizzly bear and its habitat, specific sites identified within the project areas for Pacific Coast Mines' 1982 drilling program have been evaluated. All future sites would be evaluated on a site-by-site basis by the Forest Service. A 1983 drilling program covering the proposed projects would be described in a separate supplement to the 1982 plan of operations and reviewed by the Forest Service.

Proposal

The two proposals submitted by Pacific Coast Mines consist of two separate operating plans, each covering the 1982 and 1983 operating periods. The purpose of each program is to test and delineate hard rock mineralization in the Copper Gulch and Rock Peak areas. The proposed schedule for the 1982 exploration program in these two areas is as follows:

Copper Gulch - June 1 to July 31, 1982
Rock Peak - June 1 to September 30, 1982

Initial operations would begin at drill sites located in the Copper Gulch area. As drilling is initiated in Copper Gulch, operations would begin at the proposed Scotchman Peaks project near Squaw Peak. A helicopter staging area would be located at a site on private land along Bull River (Sec. 25, T.27N., R.33W.) to facilitate helicopter use in these two areas and minimize potential impacts. Anticipating drilling to be completed in these two areas at the same time, operations would then be moved to the Rock Peak site of operations.

All drilling would be conducted utilizing diamond drill machines capable of being transported by helicopter. The drills to be used would be one Longyear Model 38 and one Hydra-Wink, or their equivalents. The total number of holes to be drilled over the two-year period is not known but may range from 14 to 23. The following is a summarized account of drilling activities during 1982 for the two proposed project areas:

Location	Proposed No. of Holes	Proposed No. of Holes	Type of Drill	Approximate Depth of Drill Holes (Feet)
Copper Gulch	2-4	4	Longyear 38	500-1000
Rock Peak	2-5	5	Hydra-Wink	< 600
TOTAL	4-9	9		

It should be noted that the total number of drill holes completed would depend on weather conditions, downtime of drills, and other limiting factors. In addition to the drilling operations, geologic mapping and geochemical sampling are planned in each of the project areas.

Prior to the initiation of drilling activities, a survey of prospective drill sites, snow pack, and surface water conditions would be conducted, utilizing a helicopter. Forest Service personnel associated with the projects would be involved in the reconnaissance.

Placement of drilling equipment at drill sites would be on bedrock, to the extent possible. However, due to the geology and topography of the project areas, this may not be possible at all times. In such cases, to keep the drill sites as level as possible and minimize surface damage, the drills would be placed on cribbed wood drill platforms. The wood cribbing would be obtained from outside the Wilderness Area.

The principle water sources for drilling operations in each of the project areas are as follows:

Copper Gulch - Chicago Creek and Copper Creek
Rock Peak - Rock Creek and a small unnamed lake southeast of Cliff Lake.

The drills require 12-15 gallons per minute, and water could be gravity fed when possible. If drought or other conditions should make the gravity feed system infeasible, a mechanical pump system and water hose would be used.

Air operations would utilize a helicopter capable of safely and efficiently transporting crews and equipment to and from the areas of operation. Only flight corridors and landing sites within the Wilderness Area approved by the Forest Service would be utilized. The drill and all necessary fuel, equipment, and crews would be moved to the drill sites from a staging area located on private land along Bull River (Sec. 25, T.27N., R.33W.). Due to the location of the projects in the Wilderness Area, there are no existing roads available as an alternate means of access.

To minimize the number of helicopter flights during on-going drilling activities, a number of mobile campsites have been proposed for the two project areas. In the Copper Gulch project area, three campsites are proposed for supporting 4 drillers, 2 geologists, and 1 cook. In the Rock Peak project area, two campsites are proposed to support 4 drillers, 2 geologists, and 1 cook.

Key Issues

1. Reasonable evidence of potentially, valuable mineral deposits in the proposed project areas.

2. Impacts associated with increased helicopter activity.

3. Protection during the project of:

   a. grizzly bear and its habitat
   b. mountain goat and its habitat
   c. other big game wildlife species
   d. water quality and aquatics
   e. vegetation and soils
   f. cultural resources
   g. the wilderness experience

Alternatives Considered

1. No Action

2. Approve the two plans of operations essentially as submitted for the two-year drilling program documenting the analysis and approval process with a single Environmental Assessment. Appropriate wilderness resource protection measures not addressed in the operating plans could be incorporated into the plans through an amendment or addendum.

3. Approve both plans of operations with a reduced level of drilling for the Rock Peak proposal. Both plans would be modified to prohibit camping within the project areas.

4. Prepare an Environmental Impact Statement.

Major Changes that Would be Unavoidable

1. Motorized equipment would create unnatural noise in the Wilderness Area during the period of operation. This would negate the wilderness experience to people in the project areas and decrease the quality of the experience in adjacent areas.

2. The operations would be on-site nonconforming uses (relative to the natural wilderness setting) and would conflict with recreation use in the areas and adjacent areas for each operating season.

3. This activity in the Wilderness Area would be undesirable to some members of the public and controversial in nature.

4. Drilling activities in the project areas would have adverse impacts on soil, vegetation, water quality, and aquatics. Through mitigation measures, these impacts can be minimized and made short term.

5. Increased concentrations of people within the Wilderness Areas will increase the potential for human/bear conflicts.

6. Due to the cumulative impacts resulting from mineral exploration and associated activities within Bear Unit #5 the grizzly bears' usuable habitat will be reduced to 63 square miles. Bear Unit #5 represents a theoretical home range of 103 square miles (see APPENDIX K, Biological Evaluation).

7. The drilling operations and associated helicopter activities have the potential to temporarily reduce usable mountain goat habitat and disrupt behavior patterns within mountain goat habitats identified for

the Cabinet Mountains (see Mountain Goat Habitat Management Plan for the Cabinet Mountains).

8. The drilling operations and helicopter use will temporarily displace other big game wildlife species and reduce the usuable habitat.

9. Increased helicopter activity associated with the proposed projects and ASARCO's exploration project would increase potential safety hazards and disturbance to private landowners along Bull River Highway.

COPPER GULCH - ROCK PEAK MINERAL EXPLORATION

Table of Contents

I. INTRODUCTION

A. Purpose and Need

Pacific Coast Mines, Inc. (U.S. Borax and Chem. Corp.) has proposed a two-year exploratory drilling program (1982-1983) involving two separate areas within the Cabinet Mountains Wilderness Area (see APPENDIXES A and B, Operating Plans). Their intent is to validate mineral claims located on National Forest land by defining the quantity, quality, and extent of the mineralized zone prior to December 31, 1983.

The purpose of this analysis is to 1) assess the environmental impacts of the two-year exploratory drilling program, 2) describe and evaluate alternatives to this proposal, and 3) act as a guide to minimize or mitigate any unavoidable impacts. The vicinity map in the AFFECTED ENVIRONMENT section shows the general location of both project areas in the proposed exploration program.

No attempt will be made to analyze the effects of any possible future development of the mineral resource. Development, if proposed, would be evaluated in a specific environmental assessment or environmental impact statement.

The proposed project areas are located adjacent to the east and west boundaries of ASARCO's claim block and exploratory drilling project. ASARCO is conducting a four-year exploration project (1980-1983) in the Wilderness Area. The Environmental Assessment covering their plan was approved June 17, 1980. To date, ASARCO has completed 43 holes on 30 sites with the 1982 program proposing 30 holes on 28 sites. The combined activity of both exploration projects within the Wilderness will result in cumulative impacts on the wilderness resource that need to be analyzed in this Environmental Assessment.

Of particular concern is the cumulative impact of the projects on the grizzly bear and its habitat. These projects are within Bear Unit #5. The Kootenai Forest Cumulative Effects Task Force has prepared a process for analyzing these impacts. The process will be utilized in this Environmental Assessment and assist in developing mitigation measures to minimize the impacts.

The analysis of ASARCO's Chicago Peak project, as documented in the Environmental Assessment, Chicago Peak Plan of Operations (Rock Creek Properties), provided management direction and wilderness resource protection measures for proper administration of mineral exploration projects with the Wilderness Area. This analysis and the practical experience gained through its administration over the past two years will help direct the analysis of the Pacific Coast Mines' proposed projects and insure adequate resource protection.

B. Planning Framework

The paramount concern is the projects fall within the legal parameters of protection to air, water, threatened and endangered species, and cultural resources, as described in the 1872 Mining Law, Wilderness Act, Endangered Species Act, Clean Air Act, Clean Water Act, Archaeological and Historic Preservation Act, American Indian Religious Freedom Act, National Environmental Policy Act, and National Forest Mining Regulations. They also must meet Montana State requirements regarding water use and quality, and hard rock mineral exploration and reclamation. In light of these laws and regulations, it is important to select an alternative which protects to the most reasonable extent possible, the wilderness resource, but at the same time recognizes the claimant's statutory rights related to mineral resource development.

1. Mining Law of 1872

The basic law that authorizes exploration and mining on National Forest public domain is the General Mining Law of 1872. Under the 1872 law, entitled "An Act to Promote the Development of the Mining Resources of the United States," citizens are given the right to explore for, lay claim to, and develop deposits of valuable minerals. These activities are regulated primarily by the 1872 Mining Act Surface Use Regulations (36 CFR 228, formerly 36 CFR 252), and in the case of Wilderness Areas, by the Wilderness Act of 1964 and 36 CFR 293.

2. 1872 Mining Act Surface Use Regulations

Surface Use Regulations require that an operator conducting operations under the Mining Law submit a Plan of Operations for all mineral activities that result in significant disturbance of the surface resources. The operating plan identifies the operator, describes the work that is planned, the nature of proposed surface resource disturbance, and the steps that will be taken to minimize resource disturbance. An approved operating plan is basically an agreement between the operator and the Forest Service. The operator agrees to observe necessary and reasonable precautions, spelled out in the plan, to minimize damage to surface resources during the proposed activities. The Forest Service, in turn, agrees that protection of the surface resources will be adequate if the operations are carried out according to the plan.

The Surface Use Regulations require the Forest Service to conduct an environmental analysis of the proposed operations, documenting it in an Environmental Assessment (EA), according to guidelines established by the National Environmental Policy Act (NEPA). Development of the EA is the analysis process that is used to evaluate the environmental effects of the operation, through comparison using a range of reasonable alternatives.

Upon submission of a plan of operations by the operator, the Forest Supervisor has the option of making one of four general decisions regarding the plan, within a prescribed time period. These include:

a. Approve the Plan of Operations as submitted.
b. Approve the plan with necessary changes or additions.
c. Ask for continued time period to complete the review.
d. Prepare an Environmental Impact Statement.

3. The Wilderness Act of 1964

The Wilderness Act of September 3, 1964 (78 Stat. 890) recognizes the rights of the mineral's claimant under existing mining laws and provides for prospecting and mining in wilderness, while still recognizing the wilderness resource. These rights include the use of mechanized ground or air equipment and those developments necessary for exploration, drilling, and production of minerals.

Until December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing extends to National Forest Wilderness Areas to the same extent as applicable prior to the date the Wilderness was incorporated into the National Wilderness Preservation System (16 U.S.C. 1133(d)(3)) subject to the provisions of 36 CFR 293 and 228.15.

On January 1, 1984, Wilderness Areas will be withdrawn from all forms of appropriation under the mining law, except on valid claims where discovery of valuable minerals has been proven. On those claims validated by the cut-off date, exploration and mining may continue in future years.

4. The Endangered Species Act

The Endangered Species Act of 1973 requires all Federal agencies to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of threatened or endangered species, or adversely modify critical habitat of such species.

In connection with ASARCO's Chicago Peak Exploration Project in the Cabinet Mountains Wilderness, formal consultation was initiated on the grizzly bear for the 1979 exploratory drilling program. The U.S. Fish and Wildlife Service concluded that project activities associated with the exploratory drilling program were not likely to jeopardize the continued existence of the grizzly bear. Formal consultation was reinitiated for ASARCO's 1980-83 drilling program. In their Biological Opinion, dated June 13, 1980, the USFWS concluded the four-year Chicago Peak Mining Exploration Project by ASARCO was likely to jeopardize the continued existence of the grizzly bear. However, they developed a compensation plan outlining minimum requirements that if implemented would avoid jeopardizing the grizzly bear. These included: 1) modifying ASARCO's period of operation, 2) rescheduling or eliminating timber sales, and 3) providing for the security of grizzly habitat through road closures. (For specific measures in the Compensation Plan see the Environmental Assessment, Chicago Peak Plan of Operations (Rock Creek Properties).) These measures were implemented and the mineral exploration proposed by ASARCO continued.

Both ASARCO's on-going project and Pacific Coast Mines' proposed projects are in Bear Unit #5 as identified in the Grizzly Bear Cumulative Effects Process. As previously

discussed, the impacts of ASARCO's project on the grizzly bear have been compensated. With regard to additional impacts on the grizzly bear and its habitat resulting from Pacific Coast Mines' proposed projects, and other on-going activities, the Forest Service has prepared a Biological Evaluation (see APPENDIX K). The Evaluation indicates that these projects in combination with existing activities may adversely affect the grizzly bear. As a result of this determination, formal consultation will be reinitiated with the U.S. Fish and Wildlife Service. The USFWS will formulate a Biological Opinion which will indicate if the cumulative activities will jeopardize the continued existence of the grizzly (see APPENDIX L).

5. American Indian Religious Freedom Act

P.L. 95-341 requires consultation with Native Americans relative to on-going or planned activities on National Forest land to determine if there are conflicts with their cultural and religious activities.

Prior to approval of this proposed project, the Kootenai National Forest will consult with the Kootenai Cultural Committee of the Confederated Salish Indian Tribe to identify concerns, conflicts, and specific sites that they feel would be adversely affected by the exploration activity in the Copper Gulch and Rock Peak areas of the Wilderness, and methods of protection for these areas.

C. Scoping Issues, Concerns, and Opportunities

The scoping process is intended to give the decisionmaker a clear picture of the issues, concerns, and opportunities of a proposed action on Federal lands. The process may use input or recommendations from affected publics, as well as agencies and special interest groups.

The scoping process of Pacific Coast Mines', Inc. proposal has utilized public issues and concerns identified in similar projects such as ASARCO's Chicago Peak drilling program, from on-going dialogue with groups and agencies concerned about minerals activities in the Cabinet Mountains, from on-the-ground monitoring of minerals exploration, and from groups contacted during the Forest Service grizzly bear cumulative effects analysis (see page 50 for Consultation).

The following issues and concerns resulted from the Forest Service's scoping process on Pacific Coast Mines' proposals:

1. Impact of wilderness visitors' enjoyment and wilderness experience in the affected portion of the Cabinet Mountains Wilderness.

2. Cumulative impacts within Bear Unit #5 on the numbers, distribution, and reproduction of the grizzly bear and its habitat.

3. Effects on mountain goat populations in the Rock Peak project area.

4. Impacts on water quality of lakes and streams in the project area.

5. Impacts on aquatics of lakes and streams.

6. Impacts on fragile vegetation and soils in the Wilderness.

7. Impact of increased helicopter activity associated with the proposed projects and ASARCO's existing exploration project on private landowners along Bull River.

8. Potential safety hazards associated with increased helicopter activity (i.e., 2 helicopters operating simultaneously) within the helicopter corridor identified for Copper Gulch.

9. Reasonable evidence of potentially valuable mineral deposits in the proposed project areas.

10. Increased potential of human/bear conflict and increased impacts on vegetation and soils in the Wilderness resulting from support camps associated with the drilling projects.

11. Impacts on other big game wildlife species in and adjacent to the proposed project areas.

12. Adverse effect on public use of National Forest land for a variety of recreational purposes due to implementation of possible compensation measures (i.e., road closures).

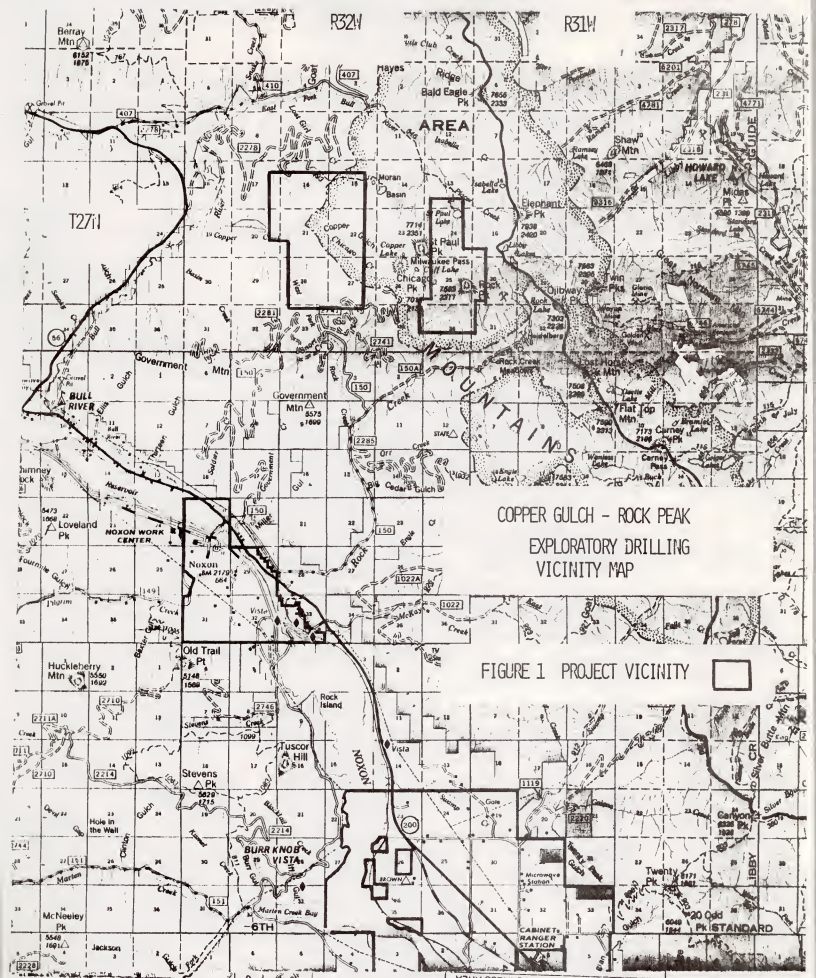
II. AFFECTED ENVIRONMENT

A. Location

The Copper Gulch project area is located adjacent to and within the Cabinet Mountains Wilderness Area in sections 15, 16, 17, 20, 21, 22, 27, 28, 33, and 34, T.27N., R.32W., approximately 17 miles north of Trout Creek, Montana.

Three drill sites are located within the Wilderness and one drill site approximately one-quarter mile outside the Wilderness boundary. Two campsites are proposed to support the drill sites within the Wilderness and one to support the drill site outside the Wilderness boundary (see Project Proposal Map, APPENDIX A). The project area currently consists of 168 unpatented mining claims totaling approximately 4,240 acres.

The Rock Peak project area is located within the Cabinet Mountains Wilderness Area in sections 13, 24, 25, 26, 35, and 36, T.27N., R.32W., and sections 19, 30, 31, T.27N., R.31W., approximately 16 miles north of Trout Creek, Montana.


R32W
R31W
T27N
AREA
MOUNTAINS
COPPER GULCH - ROCK PEAK
EXPLORATORY DRILLING
VICINITY MAP
FIGURE 1 PROJECT VICINITY
CABINET MOUNTAINS WILDERNESS AREA
Berray Mtn
Hayes Ridge
Bald Eagle Pk
Shaw Mtn
HOWARD LAKE
Elephant Pk
Moran Basin
Copper Lake
St Paul Pk
Milwaukee Pass
Chicago Pk
Government Mtn
BULL RIVER
Cedar Gulch
Loveland Pk
NOXON WORK CENTER
Noxon
Old Trail Pt
Huckleberry Mtn
Rock Island
Tuscor Hill
Vista
Stevens Pk
Hole in the Wall
BURR KNOB VISTA
McNeeley Pk
Jackson
Twenty Pk
20 Odd Pk
STANDARD
CABINET RANGER STATION
Flat Top Mtn
Carney Pk
Carney Pass
Lost Horse Mtn
Midas Pk
Canyon Pk
Government Mtn
Cedar Gulch
Rock Creek Meadows
Noxon Rd
Vista Rd
Burr Knob Rd
Marten Creek Rd
Silver Butte Rd
Old Trail Rd
Rock Island Creek
Tuscor Creek
Marten Creek
Burr Knob
Copper Creek
Chicago Creek
Cedar Creek
Rock Creek
Silver Butte Creek
Twenty Pk Creek
Canyon Pk Creek
Standard Creek
Flat Top Creek
Carney Creek
Howard Gulch
Micronova Station
BROWN'S
GUIDE
CR
IBBY

All five Rock Peak proposed drilling sites are located within the Wilderness with two campsites proposed to support the drill sites (see Project Proposal Map, APPENDIX B). The project area currently consists of 83 unpatented mining claims totaling approximately 1,860 acres.

Both proposed project areas are within the Bull River-Clark Fork Planning Unit.

B. Vegetative Cover

The sites within the Copper Gulch project area are located immediately upon the valley floor of the Copper Gulch drainage. Timber within this area is composed mainly of second-growth Douglas-fir and larch. Both vegetation and timber are much denser within this environment as compared to the higher alpine environment. It is less susceptible to damage and, if disturbed, has a much quicker recovery rate. Considering the density of the timber and location of drill sites within the drainage, more extensive cutting may be necessary for drill site clearing and safe helicopter access.

The Rock Peak project area is generally composed of alpine timber types of subalpine fir, whitebark pine, and alpine larch. Vegetation is sparse and fragile, and easily susceptible to damage. Vegetation is concentrated on flat benches or near water sources. If disturbed, it would require many years to return to its natural condition. At this high altitude with severe environmental conditions, recovery is limited and slow.

C. Geology and Soils

Soils were derived primarily from siltite and argillite bedrock. Surface soils are very gravelly loams and sandy loams, usually ranging from 4.5 to 6.5 in pH. Ground surfaces have large amounts of rock. Other than in the valley depressions and flat benches, the soils are shallow, usually less than three feet deep.

The Cabinet Mountains have been extensively glaciated. Alpine glaciation has been the dominant geomorphic agent at the high elevations, resulting in sharp ridges, cirque lakes, hanging valleys, scoured side slopes, and filled valleys.

Soils that occur in Copper Gulch are mainly residual, except for a small amount of glacial till occurring in the stream bottom. This originates from glaciation in the Copper Lake area. The soil surface is a 6-10 inch silt loam, volcanic influenced loess cap.

The north side of Copper Gulch is land type 401. This is a steep, glacially scoured valley wall. Slope is less than 65 percent and 50-80 percent bedrock occurs. Drainages are short, and vegetation is lacking due to snow slides. Soils are shallow, sandy loams with a thin loess cap. Vegetation covers 30-50 percent of the slope. Rock Peak site, northeast section 36, T.27N., R.32W., is also land type 401. This site is similar to land type 401 on the Copper Gulch site. Soils are shallow and disturbance on the surface should be kept to a minimum.

Rock Peak site, located in southwest section 25, T.27N., R.32W., is on land type 403. This is a cirque headwall. Slopes are steep and soils are shallow with sparse alpine vegetation, and shallow soils in this environment take a long period of time to develop. Subsoil surface disturbance and vegetative removal should be minimized.

The south side of Copper Gulch is land type 252. Slopes are steep (greater than 65 percent). Soil is shallow to moderately deep on this aspect due to less glacial scouring and a more favorable site for soil development. Rock outcrop is more than 15 percent and vegetation cover is 60-80 percent. Drainages on the slope are short and slightly entrenched. Soils are sandy loams with 50-65 percent rock fragments, overlain by a 6-15 inch loess cap.

Slopes on both sides of Copper Gulch are very steep (greater than 65 percent). Soils are shallow and highly erodable on these slopes. Drainages are short, first order parallel drainages that move water rapidly downslope. Soil disturbance should be minimized on these slopes. Any loose soil material can easily be delivered to the main stream channel.

D. Recreation

Primary use of the Cabinets has been for recreational purposes with hiking, camping, and fishing the principle uses. The majority of the users are local residents making one or two-day trips. There is some use of the area for big game hunting, primarily for mountain goats, deer, and elk. Some outfitters and guides may be issued permits to operate in the Rock Lake-Rock Peak area. Big game hunter use is limited due to difficult terrain and remoteness of the area. Most of the use is from the 1st of July through Labor Day. Recreational activity within the project area is primitive in nature. The small lakes in the project areas do not contain fish. The area is known for its wildflowers and scenic qualities which attract a small number of people to the area. During the period of 1979 and 1980 visitor use in the area was high due to public interest in ASARCO's mineral exploration. In 1981 this interest apparently waned. Only two public contacts were recorded by Forest monitors associated with ASARCO's Chicago Peak exploration project during the 1981 operating season.

St. Paul Lake and Moran Basin, located north and east of the project, receive moderate to high visitor use for camping and fishing. In 1977, Moran Basin and St. Paul Lake had 146 and 148 users, respectively, indicating these as high use areas on the District's portion of the Cabinets. Moran Basin and St. Paul Lake had 78 and 81 visitor days, respectively. These were the third and fourth highest visitor days recorded for the District's portion of the Wilderness Trail System. The trend for use was the same for information recorded in 1978 and 1979. More recent information on these trends has not as yet been provided.

Due to limited recreation use resulting from the remote location and rough terrain of the project areas in Copper Gulch and near Rock Peak, direct conflict with the recreational experience in these areas would be minimal due to limited recreationist use.

The recreational experience in areas adjacent to the project will be limited over the next two operating seasons primarily due to engine noise. The drill, helicopter, and possible water pump noise will be heard from Moran Basin, St. Paul Lake, and Rock Lake and trails accessing these areas. To minimize noise disturbance during periods of peak use, shutdowns could be imposed on 4th of July and Labor Day weekends.

E. Visual Resource

Both projects lie within an area of outstanding scenery and high mountain landscapes. The terrain within the claim blocks is characterized by flat benches, cirque lakes, mountain streams, and talus-covered mountain slopes. Much of the area in lower Copper Gulch is covered by second-growth timber.

The prescribed Land Use Plan (LUP) Visual Quality Objectives (VQO's) for the projects appear to be as follows:

	Project	LUP/VQO
1.	All sites in Rock Peak Project area.	Preservation
2.	All sites on the Copper Gulch project within the Wilderness boundary.	Preservation
3.	The lowest Copper Gulch campsite and helipad (outside Wilderness boundary).	Modification* (Big Game Winter Range)
4.	Lowest elevation drill site.	Retention (Primitive Recreation)

*This site is very close to Primitive Recreation area boundary. Partial Retention VQO would be more appropriate.

Exploration operations (drilling, camping, and helicopter support activities) have the potential to adversely modify the onsite (nearby trails and manways) Wilderness visual experience for the duration of the exploration activity. However, with careful control during the operation (i.e., screening) and a thorough cleanup at the end of drilling, the Wilderness user should not be able to detect any visible change in the Wilderness character.

The Copper Gulch project area is rated very high in viewing significance with the reference point being the Bull River Highway. However, off-site viewing should not be affected by the proposed operations because of the distance and capability to screen the operations utilizing both terrain features and tree cover.

F. Air Quality

Air quality in the project area is excellent. No constant sources of air pollutants exist within or adjacent to the area. There are no sources of chemical or human pollutants within the area.

The 1977 amendment to the Clean Air Act of 1963 (P188-206) required that the Nation be segmented and classified into three broad categories of air quality. Wilderness areas were classified as mandatory Class I (pristine air) areas.

Management activities in and around such Class I areas must be developed and implemented so as not to degrade the air quality below established limits. These limits have not yet been quantified on National Forests. Until the base line limits are established, the Forest Service recognizes the claim block as being in a Class I air quality area and will conduct activities within the Wilderness with full consideration to maintenance of high quality air.

A PSD (Prevention of Significant Deterioration) permit is not required with the type and amount of emissions produced with this type of facility. Emissions will not affect the Class I air quality.

G. Fire Management Considerations

Fire occurrence in the Cabinets is low, with most fires caused by lightning. Due to moisture and fuel conditions, rate of spread is low and resistance to control is low. Fire suppression and the subalpine environment have excluded large fires from the area. The project area has not been burned over in recent history.

Proposed camping associated with the drilling activities will increase the potential for occurrence of person-caused fires in the Wilderness. The denser vegetation and timber within the Copper Gulch project area provide fuel conditions different from those found in higher, alpine environments. This difference may result in an increased rate of spread and resistance to control.

Person-caused fires within the Wilderness will be suppressed immediately. The course of action to be taken for natural fires within the Wilderness and project vicinity will be addressed in and under the guidance of the Cabinet Mountains Wilderness Fire Management Plan.

H. Wildlife

Both the Copper Gulch and Rock Peak projects are located within essential grizzly bear habitat, identified as Bear Unit #5. Thirteen habitat component types representing important foraging and denning elements were mapped in this bear unit as well as seven other units in the analysis area. The components were separated into seasons of importance. The quality, quantity, and diversity of components by season were assessed to determine habitat value ratings (see APPENDIX D, Sample Compilation Sheet). Criteria were established for bear unit areas to maintain a viable situation for grizzlies. A Biological Evaluation was conducted to determine how well Bear Unit #5 met established criteria in light of on-going as well as proposed activities.

A minimum threshold has been reached in terms of freely available grizzly habitat within Bear Unit #5 due to the cumulative impacts of resource developments within this unit. Of the 103 square miles of grizzly habitat within Bear Unit #5, 39 square miles are at present not freely available to the grizzly bear. This reduction leaves 64 square miles of freely available bear habitat which is below the 70 square mile limit estimated to be the minimum amount necessary to support one female grizzly bear.

During the 1981 season, there were confirmed sightings of grizzly bears in areas adjacent to the project area. Three bears were sighted in the Libby Creek area and one near Ozette Lake. Both of these areas are approximately 2-3 air miles east of the Rock Creek project area. These sightings were made in conjunction with a wildlife helicopter reconnaissance flight conducted by ASARCO.

The main ridges connected with St. Paul Peak and Rock Peak have been identified as part of the core area for mountain goat summer and transitional range. This area extends south along the ridge from Moran Basin to St. Paul Peak and Rock Peak to Rock Creek Meadows. It also extends north to Elephant Peak and Isabella Lake (see APPENDIX C, Mountain Goat Habitat Map). It contains heavily used travel corridors and habitat areas for spring, summer, and fall use. The claim block of the Rock Peak project lies within this core area. The area south of Rock Peak toward Rock Creek Meadows has been identified as confirmed winter game range, Management Situation 1. This classification constitutes the area as critical winter range most sensitive to habitat manipulation and human activity (refer to Mountain Goat Habitat Management Plan for the Cabinet Mountains). The upper west face of Rock Peak has the potential of being a mountain goat kidding area. This area is within the claim block for the Rock Creek project area.

The area just north of Copper Gulch has been identified as probable winter game range, Management Situation 2. This area contains suitable winter goat habitat but lacks frequent sightings of mountain goats. It is also a suspected mountain goat kidding area. In June of 1981 a ground survey of the area was conducted by the District and State wildlife biologists. They did not observe any mountain goats or evidence of goat use. This area lies within the claim blocks of the Copper Creek project area and ASARCO's claim block.

There are no known high-use sheep areas in the vicinity of the project. The closest known areas are north of Moran Basin in the Dad Peak area. This species will thus apparently not be adversely affected by the proposed drilling activity.

Mule deer are probably the most numerous and widespread big game species in the area. High-use areas are associated with steeper slopes and ridges where grasses, forbs, and other forage is available. Mule deer are present in the area during spring, summer, and fall. While they are not as sensitive as goats, the deer will probably be displaced from the areas of most activity. It is not expected that this species will be significantly affected by the proposed activity.

Whitetail deer will be found mostly below the proposed area of activity, principally in the main Bull River drainage, Rock Creek, and Government Mountain areas. Here animals seek out heavy cover and this should buffer them from most of the activity.

Elk are present in the east fork of the Bull River drainage, Berray Mountain, and the Snake Pass area. A movement area between Moran Basin and the heads of Copper Gulch, Chicago Creek, and the west fork of Rock Creek exists during late spring, summer, and fall. The area near the west fork of Rock Creek is an important high-use area. Like the goat, mule deer, and whitetail deer, elk

will be displaced from the area by the drilling activity and helicopter use. It will be imperative to minimize disturbances of key areas.

Black bear are found throughout the area and utilize some of the same areas as grizzly bear. A black bear sow and two cubs were observed in the Copper Gulch area with several other sightings west of Chicago Peak. The sightings were made during the summer of 1981 by Forest Service monitors and during helicopter flights in conjunction with ASARCO's Chicago Peak project. Immediate impacts on the bear's activity due to helicopter activity were not apparent but disturbance from helicopter flights should be avoided. The bears will likely continue to use portions of the project areas, but will probably avoid areas of activity immediately adjacent to the drills.

The fall period is critical to the bears in terms of overwinter survival and reproductive success. They must be allowed to forage freely and accumulate fat reserves. Because of this factor, it is important to minimize disturbances in known fall food areas such as huckleberry patches and other fruit-producing sites.

Golden eagles have been seen in the Moran Basin, and St. Paul Pass and Copper Gulch areas, however, no precise nest information exists at this time. As early nesters, golden eagles would be fledging when much of the proposed activity would occur. The birds are extremely sensitive during fledging and if a nest is identified during the operation, it may be necessary to modify the operation in the vicinity of the nest until fledging is completed.

I. Water

Precipitation within the Copper Gulch and Rock Peak project areas ranges from 70 inches on the middle reach of Copper Gulch to 100+

inches on Rock Peak. Snowpack averages 8 to 14 feet in these two areas, respectively. Two small cirque lakes ($\sim$ 1 acre) are located below the Rock Peak snowfield with substantial ground water flow supplying the perennial portion of Cliff Creek. Chicago Creek enters the perennial reach of Copper Gulch within the proposed project area.

Water quality is characterized by low suspended sediment and turbidity concentration, low conductivity and mineral content, and neutral to slightly acidic pH with a low buffering capacity for heavy metals. Low summer temperatures are common except on portions of intermittent drainages in August (the lowest average precipitation month). All drainages exhibit A_1 State surface water quality criteria and Class I ground water criteria.

The lower portion of Copper Creek within the Copper Gulch project area has fisheries potential for cutthroat and brook trout. The cumulative impact on water drawdown from Copper Creek for use in on-going and proposed mineral exploration projects may result in adverse effects on the fisheries population. The potential for this impact would be greatest after spring runoff, as a water source, has been depleted.

J. Archaeology

No inventory for determining location of historic sites has been conducted in the Copper Gulch and Rock Peak project areas. Prior to initiation of drilling activities for this operating season, specific drill sites will be examined by a qualified archaeological consultant approved by the Forest Service. It will be determined at that time if conflicts exist due to location of proposed drill sites within or near designated historical sites.

K. Socio-Economics

The unemployment rate in Sanders County is high at the present time due to sawmill layoffs and shutdown of logging operations. The proposed drilling program will employ approximately 6-8 drill workers seasonally, plus additional service personnel. Most of the drill workers will come from outside the area. These workers will place demands on housing and service industries in Sanders and Lincoln Counties. Due to the small number of people employed in the proposed drilling project, little or no impact is anticipated on equal employment opportunities.

III. EVALUATION CRITERIA

Evaluation of the proposed projects and possible alternatives must be consistent with the policies and direction of the 1872 Mining Law, the 1872 Act Surface Use Regulations, the Wilderness Act of 1964, Kootenai Forest Grizzly Bear Cumulative Effects Process, the Endangered Species Act of 1973, Kootenai National Forest coordinating requirements, the Bull River-Clark Fork Land Management Plan, and applicable Federal and State laws and permits as required by other coordinating agencies. Evaluation criteria were developed upon review and consideration of identified issues and concerns.

A. Minerals Claimant Criteria

1. Pacific Coast Mines', Inc. primary objective is to explore by drilling methods to determine whether an economically viable mineral body exists within the project areas, and to plan exploration within the Cabinet Mountains Wilderness to meet the December 31, 1983 wilderness withdrawal deadline.

2. The drilling operation be carried out in the most cost-efficient manner, yet with the least possible impact on the wilderness resource in accordance with the direction of the Wilderness Act.

B. Forest Service Criteria

1. Provide for claimant's rights as specified by the General Mining Law of 1872 and the Wilderness Act of 1964.

2. In accordance with the Bull River-Clark Fork Land Management Plan meet the following management objectives for the project areas: preserve the natural state of the environment while providing a primitive recreation experience for the west portion of the Copper Gulch project (Management Unit #1); and preserve the wilderness character for the remaining portion of the project areas (Management Unit #14). The objectives in these two management units will be met by, but not limited to:

   a. minimizing impacts to solitude
   b. minimizing ground disturbance
   c. minimizing disturbance of vegetation
   d. protecting soil and water
   e. minimizing effects on visual and scenic values

3. Assure compliance with applicable Federal and State air, waste, and water quality standards.

4. Obtain necessary permits for mineral exploration and water use from each agency involved.

5. Assure compliance with P.L. 93-205 - Endangered Species Act of 1973 and insure protection of grizzly bear security within Bear Unit #5 as defined by the Kootenai Forest Cumulative Effects Process.

6. Minimize effects on other big game wildlife species.

7. Minimize safety hazards and disturbance to the public and private landowners affected by increased helicopter activity associated with the project.

IV. ALTERNATIVES CONSIDERED

A. Formulation of Alternatives

Alternatives to the proposal were developed as a result of contact with and input from groups and agencies concerned about minerals activities in the Cabinet Mountains Wilderness, from experience gained by assessing mineral exploration projects of similar impact and magnitude (i.e., ASARCO's Chicago Peak Project), and from interdisciplinary input from District and Forest personnel. These alternatives take into account the laws and regulations governing the exploration for minerals on public lands administered by the Forest Service, specifically, designated wilderness areas. These laws and regulations include the 1872 Mining Law, the 1872 Act Surface Use Regulations, the Wilderness Act of 1964, Parts 228 and 293 of Title 36 Code of Federal Regulations, FSM 2320.3-2320.6, FSM 2323.7-2323.72c, FSM 2816.11, FSM 2817.01-2817.3.

B. Description of Alternatives

Four alternatives were developed for the Copper Gulch and Rock Peak projects as proposed.

Alternative 1 - No Action

Under this alternative, the plan of operations would not be approved and the proposed exploratory drilling would not be carried out. The 1872 Mining Law establishes that citizens have the right of access to public domain lands for the purpose of prospecting and exploring for, and laying claim to, and mining certain valuable minerals. The Wilderness Act specifically provides that these activities may continue within established Wilderness Areas until 1984, after which they may continue upon mining claims which contain proven discoveries.

However, the 1872 Act Surface Use Regulations and the Forest Service Manual make clear that these activities must be reasonable, justified, and conducted in such a manner as to minimize disturbance of the surface resources of the National Forest. The Forest Service has the authority and the obligation to deny any proposed operation or part thereof that fails to meet these criteria.

This Assessment shall provide a means for meeting the intent of the law while providing direction to implement measures necessary to minimize disturbance of Wilderness resources. This alternative will not be considered further.

Alternative 2 - Approve Plan of Operations as Submitted

Under this alternative, Pacific Coast Mines would be permitted to conduct mineral exploration activities in the Copper Gulch and Rock Peak areas as proposed in the Plans of Operations. No major modifications to the proposed plan would be imposed, however, resource protection measures necessary to maintain the wilderness character would be developed and made a part of the plan of operations.

This alternative would not constitute a blanket approval of drilling operations for the entire two-year period. A separate supplement to the Plan of Operations would have to be submitted for the proposed 1983 drilling program. All sites would have to be approved on a site-by-site basis by the Forest Service. Minor changes in planned operations would be documented in an addendum to this assessment along with site evaluations.

Alternative 3 - Approve a Reduced Exploration Program with Camping Prohibited within the Project Areas.

In light of the Cumulative Effects Process and threshold status of grizzly bear habitat, additional impacts on remaining freely available grizzly bear habitat within Bear Unit #5 must be

minimized. To minimize these impacts a modified alternative needs to be considered in the analysis of the proposed projects. Modifications to the proposal will be addressed in Alternative 3.

Under this alternative drilling operations within the Copper Gulch project area would be conducted at the same level of activity as proposed in the Plan of Operations. However, in the Rock Peak project area drilling operations would be reduced by not allowing drilling to be conducted at the proposed drill site located along the ridge south of Rock Peak (see APPENDIX B, Project Map). The rationale behind this alternative is to maintain the current level of freely available grizzly bear habitat within Bear Unit #5 by restricting Pacific Coast Mines' operation to the zone of influence established in conjunction with ASARCO's 1982 Plan of Operations. In addition, this alternative will include compensation measures to provide additional space for grizzly bear security areas (see APPENDIX K, Biological Evaluation). Camping would be prohibited within the project areas.

Alternative 4 - Prepare an Environmental Impact Statement

If analysis of the proposed operations indicates their approval or denial would "significantly affect the quality of the human environment" the responsible Forest Service official, through a decision notice, would initiate preparation of an Environmental Impact Statement.

V. EFFECTS OF IMPLEMENTATION

A. Sources Used in Estimating Effects of Implementation

1. Cabinet Mountains Wilderness Management Plan, USDA Forest Service, Kootenai National Forest.

2. FSM 2300 Recreation Management (2323.7-2323.72a).

3. Grizzly Bear Cumulative Effects Process, Kootenai Forest Cumulative Effects Task Force, USDA Forest Service, Kootenai National Forest.

4. Land Management Plan, Bull River-Clark Fork Planning Unit, Final Environmental Statement.

5. U.S. Department of the Interior, Fish and Wildlife Service, Biological Opinion for the 1980 Chicago Peak Four-Year Exploration Proposal.

6. Environmental Assessment (1980), Chicago Peak Plan of Operations (Rock Creek Properties), Kootenai National Forest, USDA Forest Service.

7. Joslin, Gayle. 1980. Mountain Goat Habitat Management Plan for the Cabinet Mountains, Montana. Montana Department of Fish, Wildlife, and Parks in cooperation with Kootenai National Forest.

8. Chicago Peak Field Studies Report - Summer 1980. Wilderness Institute, School of Forestry, University of Montana, Missoula, Montana.

9. The Wilderness Act of September 3, 1964 (78 Stat. 1964. 890; 16 U.S.C. 1131-1136).

10. 36 CFR 228 (formerly 252) and 293.

11. FSM 2800 Minerals Management (2816.11, 2817.01-2817.3).

12. Cabinet Mountains Wilderness Fire Management Plan, USDA Forest Service, Kootenai National Forest.

13. Input from individuals and agencies which is on file at the Cabinet Ranger Station and available for review.

B. Possible Major Environmental Effects

The analysis process identified numerous possible environmental changes or effects associated with Alternatives 2 and 3. The effects were evaluated for significance, magnitude, and duration (see APPENDIX I).

The possible major environmental effects are shown in Table A, page 27. These effects were considered those to have the greatest impact on the environment (ranked 4 or 5 by Alternative in APPENDIX I) of all possible changes identified.

To aid in evaluation of alternatives, each Alternative with a 4 or 5 ranking was listed next to the corresponding major environmental effect (Table A). In addition, based on the numerical ranking presented in APPENDIX I, each Alternative was defined in terms of the extent or magnitude of a particular major effect when associated with that Alternative. The following indicates how the magnitude of each alternative was defined.

Magnitude Ranking (from APPENDIX I)		Definition of Magnitude Ranking
0	=	none
-1	=	minimal
-2	=	slight
-3	=	moderate
-4	=	great
-5	=	extreme

The last column of Table A presents the type of changes associated with each major effect. These changes involved one or more of the following categories:

1. The component of the environment that will be affected, i.e., physical, biological, economic, social.

2. The effects that are unavoidable.

3. The duration of the effect.

4. The effects as a direct or indirect result of the projects.

5. The effects that are cumulative.

NOTE: The number in parentheses following each major environmental effect corresponds with the number of the possible environmental change identified in APPENDIX I.

TABLE A

Possible Major Effects	Applicable Alternatives	Magnitude* of Effects by Alternative	Type of Effect
1. Motorized equipment in the project area will create unnatural noise in the Wilderness, throughout the life of the project. (1)	2 3	Great Great	Physical, cumulative, unavoidable, short term, direct
2. The project will be an onsite nonconforming use, and will conflict with recreation use in the area and adjacent areas for a period of two operating seasons. (2)	2 3	Extreme Great	Social, cumulative, unavoidable, short term, direct
3. Helicopter activity in the vicinity of Copper Gulch and Rock Peak will detract from Wilderness visitors' enjoyment. (5)	2 3	Moderate Moderate	Social, unavoidable, short term, direct
4. Drillers in the area can have a detrimental effect on the wilderness resource by not adhering to the "wilderness ethic." (6)	2 3	Moderate Slight	Social, avoidable, short term, direct
5. Helicopter traffic ferrying equipment and crews back and forth from the landing to the drill sites will be visually offensive to some Wilderness users. (8)	2 3	Moderate Great	Social, unavoidable, long term, direct
6. The possibility exists of spillage of waste when materials are being transported to and from the Wilderness. (12)	2 3	Moderate Moderate	Physical, avoidable, short term, direct

*The term magnitude incorporates the concepts of both the probability and potential impact a particular effect may have when associated with each alternative.

Possible Major Effects	Applicable Alternatives	Magnitude of Effects by Alternative	Type of Effect
7. Sludge from the drilling operation if dumped on site will be visually offensive, detrimental to plant and animal life, and have an adverse effect on the Wilderness character. (13)	2 3	Slight Slight	Biological, avoidable, temporary, direct
8. When drilling near the lake or stream systems sludge could enter the water, reducing water quality, impacting aquatics, and adding siltation. (19)	2 3	Slight Slight	Biological, cumulative, avoidable, long term, direct
9. Concentrations of people within the Wilderness will increase the chance of human/bear conflicts. (21)	2	Moderate	Biological, cumulative, avoidable, temporary, direct
10. Food and garbage at the drilling sites may cause bears to frequent the area. (22)	2	Moderate	Physical, avoidable, temporary, direct
11. Crews working in the area may overreact, resulting in possible harm to bears which may wander into the area. (23)	2	Slight	Biological, avoidable, temporary, direct
12. The drilling operation may reduce the use of habitat by grizzly bears in the area. (25)	2 3	Adverse effect on continued existence of the grizzly bear	Physical, cumulative, unavoidable, temporary, direct
This effect may include the following impacts:			
a. Use of possible grizzly travel corridors may be disrupted due to helicopter and drilling activity. (25a)	2 3	Adverse effect on continued existence of the grizzly bear	Physical, cumulative, unavoidable, temporary, direct
b. Selection of grizzly denning sites may be impacted by drilling activity. (25b)	2 3	Adverse effect on continued existence of the grizzly bear	Physical, cumulative, avoidable, temporary, direct
13. The activity will displace wildlife out of the area. This could be temporary on a seasonal basis or more long term. (26)	2 3	Great Great	Physical, cumulative, unavoidable, temporary to long term, direct

Possible Major Effects	Applicable Alternatives	Magnitude of Effects by Alternative	Type of Effect
14. This activity may decrease the use of habitat by mountain goats. (27)	2 3	Great Moderate	Physical, cumulative, unavoidable, temporary to long term, direct
15. Unrestricted use of the helicopter can impact goat populations by affecting their behavior patterns and possibly survival of new kids. (28)	2 3	Great Moderate	Physical, cumulative, unavoidable, temporary to long term, direct
16. Long term displacement of goats may cause the loss of home range knowledge to future generations. (29)	2 3	Moderate Moderate	Physical, cumulative, unavoidable, temporary to long term, direct
17. Disposal of water used in the drilling operations may cause erosion of the shallow soils from the drilling area. (34)	2 3	Slight Slight	Physical, avoidable, temporary, direct
18. Discharge water disposed onto talus slopes may eventually enter and reduce the quality of ground water in the area. (36)	2 3	Slight Slight	Physical, avoidable, temporary, direct
19. Pumping large quantities of water from any lake or stream system could have detrimental effects on water quality, quantity, and the biota of the system. (38)	2 3	Moderate Moderate	Physical and biological, cumulative, unavoidable, long term, direct
20. Materials stored near the lakes and streams could enter the water affecting water quality. (37)	2 3	Slight Slight	Physical, cumulative, avoidable, short term, direct
21. Soil disturbance may occur in areas of high use, for example, at equipment and fuel storage areas. (45)	2 3	Moderate Moderate	Physical, avoidable, long term, direct

Possible Major Effects	Applicable Alternatives	Magnitude of Effects by Alternative	Type of Effect
22. This activity in the Wilderness will be undesirable to some members of the public and is controversial in nature. (53)	2 3	Great Great	Social, unavoidable, long term, direct
23. The proposed activity combined with ASARCO's project will result in cumulative impacts on the wilderness resource and recreation experience. (57)	2 3	Moderate Moderate	Physical, cumulative, unavoidable, temporary to long term, direct
24. Camping of work crews within the Wilderness will create visual impacts, site disturbance, and detract from the wilderness character. (15)	2	Great	Physical, avoidable, temporary to long term, direct
25. Increased helicopter activity associated with the proposed projects and ASARCO's Chicago Peak projects will result in additional safety hazards and disturbance to private landowners along Bull River Highway. Of particular concern is the impact on the animals on the Copper Creek Conserve owned by Judy Evans. (58)	2 3	Slight Moderate	Social and physical, cumulative, unavoidable, short term, direct

VI. EFFECTS OF IMPLEMENTATION AND EVALUATION OF ALTERNATIVES

This section compares alternatives as they relate to the evaluation criteria and with regard to the magnitude of major environmental effects associated with a particular alternative.

As previously stated, Alternative 1--No Action will not be considered further. The proposed operations are considered reasonable and justified and can be conducted in such a manner as to minimize disturbance of Wilderness resources. Alternative 4--Prepare an Environmental Impact Statement (EIS), is a decision alternative and is not applicable to this evaluation process. The decision to prepare an EIS could result from the Environmental Analysis Process.

Alternative 2--Approve Plan of Operations as Submitted.

Noise generated from this type of activity (i.e., helicopter and drills) in a wilderness area is considered a short term, unavoidable impact, however, it is the one most obvious to the Wilderness user. Implementation of this alternative would increase the already high noise levels associated with ASARCO's Chicago Peak project. Both operations would be on-going in the Copper Gulch area during approximately the same time period. Also, under this alternative, the noise would be a continuing impact over an extended period of time and disseminated to other parts of the Wilderness area as operations shift to the Rock Peak area. Operations in the Rock Peak area would be on-going during approximately the same time period as ASARCO's operation on the north side of St. Paul.

Helicopter activity associated with this alternative would be slightly reduced, as the proposed camping would eliminate the need for daily crew changes utilizing the helicopter. The reduction in helicopter flights would subsequently reduce impacts on noise levels, the wilderness recreation experience, and reduce safety hazards and disturbance to the private landowners located along Bull River within or adjacent to the designated flight corridor.

Even though Alternative 2 may reduce helicopter flights to some degree, the camping associated with it presents additional and/or increased impacts that need to be considered. There would likely result 1) increased soil and vegetation disturbance from the continuous use of a particular site, 2) increased visual impacts, 3) additional reductions from the wilderness character, and 4) increased potential conflicts with recreation use. Associated with the camping alternative would be greater concentrations of people over longer periods of time. To maintain the camps, food would need to be stored within the Wilderness and more garbage would be generated. All of these factors would increase the chance for human/bear conflicts. Also associated with the camps would be an increased fire hazard. These impacts are common to recreational camps of similar size and duration within the Wilderness.

Impacts on big game wildlife associated with Alternative 2 would be of a similar magnitude (see Table A, Item 13) as those associated with Alternative 3. Even though there would be a reduction in helicopter flights with the no camping alternative, the number of flights necessary to maintain drilling operations in both project areas would still constitute a high probability that wildlife would be displaced from the area. Also, any possible wildlife benefits that could be gained by reducing flights would tend to be offset by the combined continuous flights associated with ASARCO's operation. It is not within the scope of this analysis to estimate the extent to which this displacement would occur. It should also be noted this is considered a temporary effect and wildlife would be expected to utilize the habitat after operations cease.

A particular wildlife concern within the project areas is the mountain goat population. By reducing helicopter flights via implementation of Alternative 2 there exists a greater possibility of reducing disturbance to the mountain goats, particularly within the Rock Peak area. This area contains heavily used travel corridors, summer and transitory range, and confirmed winter range. However, it needs to be noted that implementation of this alternative constitutes a greater zone of influence within the Rock Peak area due to a greater area being encompassed by drilling activities than under Alternative 3. This greater

zone of influence would include areas immediately adjacent to the confirmed mountain goat winter range near Rock Peak.

Potential impacts on the grizzly bear and its habitat would increase as a result of implementation of Alternative 2. At present, there remains 64 square miles of freely available grizzly bear habitat of the 103 square miles identified for Bear Unit #5. This reduction is based on the zone of influence associated with existing, on-going activities. By permitting operations to be conducted as proposed under Alternative 2, freely available grizzly bear habitat would be reduced by an additional 1 square mile. This additional reduction would be attributed to an increase in the zone of influence within the Rock Peak area (see APPENDIX K, Biological Evaluation).

Alternative 3--Approve a Reduced Exploration Program with Camping Prohibited.

Implementation of Alternative 3 would result in increased helicopter activity to accommodate daily shift changes of the drill crew. Increased helicopter activity would constitute increased noise levels associated with the project. As with Alternative 2, this increase in noise levels would be combined with those being generated by ASARCO's Chicago Peak project. Even with the increased number of flights, the magnitude of this effect on the Wilderness user would be essentially the same for Alternative 2. With the noise from ASARCO's project already greatly impacting the wilderness character, not much difference would be realized due to an additional four flights per day associated with Alternative 3. Noise generated from drilling activity associated with Alternative 3 would be the same as that associated with Alternative 2. It would be a continuing impact throughout the operating season influencing both the Copper Gulch and Rock Peak areas.

As previously indicated, there would be an increase in helicopter flights associated with Alternative 3. In addition to the noise, the mere presence of the helicopter will be visually offensive to the Wilderness user and detract from his enjoyment. In this light, implementation of Alternative 3 would constitute increased impacts on the

wilderness recreation experience. Also, due to the increased flights, Alternative 3 would represent increased safety hazards and disturbance to private landowners located along Bull River Highway.

As previously mentioned, the probability that wildlife would be displaced from the area due to the project was essentially of the same magnitude for Alternatives 2 and 3. The increased flights associated with Alternative 3, when viewed in light of the impacts already realized from ASARCO's project, would not constitute any measurable difference.

With no camping allowed under this alternative, there would be a reduction in surface resource impacts as compared to Alternative 2. Crews would not be remaining within an area over a continuous period of time. Without this continuous pattern of use there would be less impact on soil and vegetation, less of a visual impact, less chance for conflicts with recreation use, and less of an impact on the wilderness character. Also, with no camps located in the Wilderness, the chance for human/bear conflicts and the potential of fires occurring would be reduced.

Impacts on the mountain goat population would be reduced as a result of implementing Alternative 3. Under this alternative the proposed drill and campsite along the ridge south of Rock Peak would not be included in the operations. This area being excluded is adjacent to an area identified as confirmed winter range, Management Situation 1, and is most sensitive to habitat manipulation and human activity (Mountain Goat Habitat Management Plan for the Cabinet Mountains). It is most critical that disturbance in this area be minimized. By prohibiting helicopter flights and other associated exploration activities within and immediately adjacent to this sensitive area, the possibility of affecting goat behavior patterns could be reduced.

However, it should be noted that in addition to the sensitive winter range, the Rock Peak area also contains summer and transitional range and has potential as a kidding area. With no camping being permitted

under this alternative, there exists an anticipated increase in helicopter activity. This increased helicopter disturbance has the potential of decreasing the use of this habitat by mountain goats.

The winter range identified in Copper Gulch is not considered as sensitive (Management Unit 2) and potential impacts on the mountain goat from increased activity would be less likely.

Potential impacts on the grizzly bear and its habitat would likely decrease as a result of implementation of Alternative 3. By reducing operations in the Rock Peak area there would be no increase in the zone of influence due to existing, on-going activities and additional proposed activities. Freely available grizzly bear habitat would be maintained at 64 square miles within Bear Unit #5.

Also under Alternative 3 compensation measures (i.e., road closures) would be implemented to increase the freely available grizzly habitat within Bear Unit #5. Implementation of the measures has the potential of adding up to 4 square miles (see APPENDIX K, Biological Evaluation). This would result in a total of 68 square miles of freely available grizzly habitat within Bear Unit #5. One possible adverse effect of these compensation measures should be noted. The road closures would decrease the availability to the public of National Forest land for a variety of recreational uses (i.e., hiking, picnicking, berry picking, etc.).

The following section will discuss the effects on resources that may possibly be impacted to a comparable magnitude as result of implementation of either of the two alternatives being evaluated.

Implementation of either of the two action alternatives could affect the water quantity, quality, and aquatics of lakes or streams in the project areas. There exists the potential for drawdown of lakes and streams used for a source of water in the drilling process. Also, due to the use of fuel and lubricating products there exists the possibility

Chicago Peak project have indicated that adequate mitigation measures can be employed within the Wilderness to minimize the magnitude of any of these impacts.

Implementation of either of the two action alternatives will result in one unavoidable impact, that is, the effect upon the publics' values. Due to its location within the Wilderness, this activity is undesirable to some members of the public and is controversial. However, it should be realized this activity is permitted by law and it is the purpose of this assessment to provide direction for protecting wilderness values while meeting the intent of the law.

VII. IDENTIFICATION OF THE FOREST SERVICE PREFERRED ALTERNATIVE

The Forest Service Preferred Alternative that will be used to implement the Copper Gulch-Rock Peak Exploration Project is Alternative 3.

Alternative 3 will provide for a higher degree of Wilderness resource protection while enabling Pacific Coast Mines to accomplish its proposed drilling than Alternative 2. Specifically, Alternative 3 was chosen for the following reasons. Firstly, by not allowing camping the probability of human/bear conflicts is reuuced and impacts on vegetation and soil are reduced. Secondly, by reducing the proposed operation in the Rock Peak area the zone of influence established by on-going projects within the area will not be increased. Activity in the area immediately adjacent to identified critical mountain goat winter range is minimized, reducing potential disturbance of mountain goat behavior patterns. Finally, by maintaining the zone of influence at its current level there are no further reductions in the freely available grizzly habitat within Bear Unit #5. It is maintained at approximately 64 square miles. In addition, Alternative 3 provides for implementation of compensation measures (i.e., road closures - see APPENDIX K, Biological Evaluation) to minimize the adverse effect on the grizzly bear resulting from on-going and proposed project activities. The compensation measures provide approximately an additional 4 square miles of freely available grizzly habitat, increasing the total to 68 square miles in Bear Unit #5.

This increase represents not only additional space but also additional habitat components.

Formal consultation with the U.S. Fish and Wildlife Servide has been initiated to determine the effect to the continued existence of the Cabinet Mountains grizzly bears of the proposed project and the Forest Service preferred alternative.

Approval of the two-year program does not grant the proponent blanket approval to drill without prior approval by the Forest Service. Next year's drilling program must be submitted as an addendum to the original plan of operations and reviewed by the Forest Supervisor. Prior to the 1983 operating season, planned operations must be examined and evaluated in detail to ensure they are within the intent of original approved plan of operations.

VIII. MANAGEMENT REQUIREMENTS AND CONSTRAINTS

This section includes management requirements and monitoring measures that will be implemented to mitigate or compensate for adverse effects associated with the project. The following items are responsive to the expected environmental changes.

Each of the following items are required to be carried forward into project implementation through incorporation into the operating plan. The 1983 supplement to the plan of operations detailing the drilling program for that operating season will be evaluated on the basis of these mitigating requirements. If additional requirements or modifications of existing requirements are needed to insure protection of the Wilderness resource they will be documented as an addendum to this environmental assessment. These additional requirements or modifications will be based on knowledge derived from previous drilling activity and new developments in the state of our knowledge concerning this type of exploration.

Periodic project reviews during the course of the season's operation will check these requirements to see that they are carried out.

1. Approval of the operating plan does not constitute certification of ownership to any person named as owner herein.

2. Approval of the operating plan does not constitute recognition of the validity of any mining claims named herein, or of any mining claims now or hereafter coverd by this plan.

3. In response to the 1966 Historic Sites Act, Executive Order 11593, and the American Indian Religious Freedom Act (Public Law 95-341) an archeological, historic, and cultural investigation will be performed for the Pacific Coast Mines, Inc. exploration project and will consist of:

   a. An intensive cultural resource survey made of the proposed project areas in the spring of 1982 by a qualified archeologist approved by the Forest Service.

   b. A written report of the intensive survey and findings.

   c. This report, along with information supplied by the Kootenai Indians, will be used to evaluate the impacts of the proposed drilling on the archeological, historic, and cultural resources of the area. Mitigation measures or recommended changes in the operating plan will be derived from these sources.

   d. Drilling or other activity should not occur within a 100-foot radius of an identified archaeological site.

   e. For this site and any future site discovered, the drill crews will be instructed as to the site's general vicinity and informed that disturbing and collecting from cultural sites is illegal.

f. If cultural materials are located in the future by Pacific Coast Mines' crews, they will be instructed to preserve these nonrenewable resources and to notify the Forest Service Administrator, who will notify the Forest Service archeologists.

g. If recommendation (d) above is in conflict with Pacific Coast Mine's, Inc. exploration process, they should begin a "Determination of Eligibility" for the specific site with the State Historic Preservation Officer.

4. No trees will be removed without advance approval on the ground by the Project Administrator. Trees to be removed will be cut with a four-inch maximum stump height and carefully selected so as not to make obvious artificial openings. If slash is conspicuous, it will be lopped and scattered.

5. No extended overnight camping by drilling crews will be allowed within the Wilderness boundary. If necessary, a tent may be used to house crew members within the Wilderness on an emergency basis.

6. Any grading, reconstruction, and periodic maintenance of the Rock Creek and Chicago Peak roads will be commensurate with volume and type of vehicle use conducted by Pacific Coast Mines, Inc. This may require minimum on-the-gound staking. Any planned reconstruction will be approved onsite prior to work. Use and corresponding maintenance will need to be coordinated between Pacific Coast Mines and ASARCO.

7. Rock Creek Road #150.3 and Chicago Peak Road #2741 are being reconstructed by Louisiana Pacific under the Government Ridge Timber Sale. The expiration date of the timber sale has been extended to March 31, 1984. Unless otherwise provided in C5.5, the Forest Service shall authorize other uses or roads constructed by purchaser hereunder only if (a) Forest Service makes appropriate arrangements to relieve purchaser of related maintenance

costs commensurate with such other uses and (b) such other uses will not materially interfere with purchaser's operation. This situation will exist until March 31, 1984, or the closing date of the timber sale.

8. The helicopter landing and staging areas will be located outside the Wilderness as approved by the Forest Service Air Officer. Temporary landing spots will be located in the Wilderness, with the approval of the Forest Service, for moving crews, equipment, and materials.

9. Access to the drill sites will primarily be by means of helicopter. When weather prohibits helicopter flights, or landing at the drill sites is infeasible, the crews will walk to the drill sites by means of a specified route identified on the ground by the Forest Service. Only minor improvements on this route will be allowed. This will include removal of logs and stubs for safety reasons. This follows the guidance of the Cabinet Mountains Wilderness Interim Management Plan. Maintenance of these routes will be approved in advance by the Forest Service.

10. Helicopter flights will generally not be permitted one hour before and after sunrise and one hour before and after sunset, based on legal sunrise/sunset tables for this time zone. These hours represent important feeding periods for many wildlife species, including bears. However, during the latter part of the operating season maintaining two 12-hour shifts would necessitate flying in subdued light conditions due to shortened day length. This could create safety problems. Therefore, during this period, flying time may be extended in the morning and evening only as much as necessary to accommodate crew movement for the 12-hour shifts.

11. Within the Forest Service's legal authority there will be no use of the helicopter in the Cabinet Mountains Wilderness except for duties officially connected with the project. There will be no firearms discharged from the helicopter.

12. All helicopter flights should stay strictly within the corridor identified on the map in APPENDIX E. The only exceptions to this should be for emergency or safety reasons, or by advance approval of the Cabinet District Ranger.

13. In order to minimize helicopter flights, a ground to air communication system will be established.

14. In order to minimize the potential adverse effect of helicopter noise on wildlife that may be in the area, the flights in and out should be by the most direct means available (within the corridor) and as close to the ground as is safely possible when within the claim boundary.

15. No helicopter flights or drilling activity will be permitted prior to June 1 or after September 30. This will provide security to ungulates that are beginning to give birth in the spring, and provide a more secure area for possible grizzly denning activities in the fall.

16. A review of the suspected kidding area in Copper Gulch by the District biologist will be conducted prior to the beginning of the 1982 operating season. It will be determined at this time if it is necessary to restrict or modify helicopter flights in this area to minimize disturbance to the mountain goat. This measure will be in accordance with Supplement No. 3 to the Environmental Assessment, Chicago Peak Plan of Operations.

17. No project activities will be on-going in Copper Gulch after August 1 of each operating season. Exceptions are helicopter overflights through the identified corridor. This will minimize disturbance to potential late summer and early fall grizzly feeding sites in this area.

18. The Forest Service requests that the helicopter and pilot associated with the project be carded by the Regional Office to allow Forest Service personnel assigned to the project the ability to

ride in the helicopter for administrative purposes. Only those Forest Service personnel specifically designated will be allowed to use the helicopter. If this is not possible, the Forest Service contract helicopter will be used for administrative purposes. It will be subjected to the same stipulations placed on the helicopter used in conjunction with the project.

19. To coordinate helicopter flights by Pacific Coast Mines and ASARCO within the same flight corridor, the helicopters will be equipped with radios capable of operating on the same frequency. The pilot in each helicopter will be required to keep the other informed as to when he is lifting off and his point of destination.

20. Upon completion of drilling, casings on all drill holes are to be removed or not left above the ground line. Drill holes are to be capped and depressions filled.

21. The drilling operation will be required to meet all State and Federal fire requirements.

22. The project area should be visited in the early stages by a wildlife biologist, fisheries biologist, hydrologist, mining engineer, geologist, archeologist, soil scientist, and landscape architect to ascertain any further problems which may develop with the project. This will be done on a yearly basis after the receipt of each supplement to the plan of operations.

23. Excess water from the drilling operation will be decanted and the sludge removed to a County-operated disposal site.

24. No sludge water will be discharged on the surface. Decanted water may be pumped into the hole after completion of the drilling operation.

25. In order to utilize spring snowmelt as a water source portable plastic lining may be used to retain water, which will be gravity

fed or pumped to holding tanks used with the drill rigs. These structures will not be permanent holding dams, but will serve to channel water as is necessary to supply the drill rig. They will not be used as permanent water-holding facilities for later use. The location and placement of the plastic lining will be inspected and approved in advance by the Forest Service. They will be removed upon completion of drilling at a particular site.

26. Sludge tanks will not be located directly in stream channels or runoff chutes, and approximately 150 feet from any live stream or lake. The tanks will have a minimum of 6 inches free board to prevent spillage and accidental overflowing. Sludge tanks will be emptied when the project is shut down for more than 48 hours to prevent overflow from rain or snow.

27. Water pumps will be placed in a pan or tray to prevent spills or leaks of oil and fuel from entering the lake or stream system. A fine mesh screen will be required on all intake hoses on pumps.

28. If polydrill or polycore is used as a drilling lubricant the product "Breakdown" or equivalent will also be used to increase the amount of by-products that will precipitate out of solution.

29. Rubber-backed indoor/outdoor carpeting or equivalent will be required and maintained on the drilling platform, and under water tanks, fuel storage, and transfer areas. The carpeting will be of sufficient size to cover the working area on the drill platform and provide sufficient soil and vegetation protection. Where sites are located on bedrock, the carpeting may be placed directly on the rock with water tanks, fuel tanks, and other equipment placed on top. Where sites are located on vegetation, wooden pallets should be placed first with carpeting laid on top of the pallets. Tanks and equipment will then be placed on the pallets. The protective cover will be inspected and approved by the Forest Service prior to use in the Wilderness.

30. Care will be taken at drill sites, storage areas, helicopter landing spots, etc., to keep vegetation disturbance to a minimum. If vegetation must be removed to facilitate construction of drill platforms and helispots, it will be removed as a clump and properly stored to be replaced after completion of work at that drill site. In areas where this procedure will not be practical seeding or planting with native species will be performed to revegetate the area.

    a. Seeding will be done using a mixture of native seeds which may include but will not be limited to sedge, alpine timothy, alpine bluegrass, lupine, pussitoes, and groundsel.

    b. Mountain heath is very receptive to transplanting where this is feasible.

        1. The soil surface should be loosened, seeded, and again loosened for best seed/soil contact.

        2. Seeding should be done in late fall.

        3. About 40 pounds of seed per acre should be used.

        4. The area should be fertilized. The fertilizer should have 100 pounds of nitrogen per acre. A mixture such as 15-40-5 would be appropriate.

31. Rehabilitation work is to be done at each site as soon as final drilling is complete. Handwork should be done to mitigate the visual impact of disturbance created by the operation on the existing landscape. Rehabilitation will be to achieve a natural condition. Where top soil is removed it should be stockpiled so that it may be spread over the surface to aid in reestablishing vegetation.

32. Because of the sensitivity of soils in the area, work should be delayed in the spring when the soil and vegetative mat are saturated and there is a high probability of unacceptable damage.

This will be evaluated on a site-by-site basis. It is encouraged to initiate spring drilling on those sites that can be located on bedrock. An on-the-ground assessment of the area will be made by Forest Service personnel before initiation of work on a particular site.

33. A bond will be required to insure that physical changes will be restored to a natural condition within the Wilderness and near-natural conditions in other areas. The amount of the bond will be $_____, based on the estimated cost of rehabilitation (see exhibit in APPENDIX J). The process of bonding will be through the State Department of Lands.

34. The operator will be responsive to suggestions by the Forest Service Administrator to modify human behavioral repetitious acts that tend to be creating an impact on the soil or vegetative resource within the Wilderness. Examples of activities that may require changes are areas of foot access to and from the drill rigs, location of the emergency tent, fuel storage area, and travel routes around and adjacent to the drilling operation.

35. The Forest Service will make an ongoing assessment of the impacts of people drawn to the area and take actions necessary to prevent unacceptable impacts on soil or vegetation.

36. Boardwalks or similar protective measures will be required in drill locations and campsites that become excessively wet, where trampling of soils is occurring, and there is the probability of unacceptable soil damage.

37. Drill sites located in steep terrain will require construction of wooden platforms to facilitate placement of the drill rig. All timbers will be obtained from outside the Wilderness. Construction standards will be approved in advance by the Forest Service. All materials will be removed upon completion of drilling at each site.

38. The location and placement of the waterlines (retrievable plastic and metal) both in and out of the Wilderness will be approved by the Forest Service. Placement of lines outside the Wilderness will be contingent upon other management activities which may occur in the area.

39. The proponent shall identify all structures and improvements planned as an adjunct to the operation. Within the Wilderness these will be temporary in nature and removed prior to the end of each operating season unless they are needed for future drilling and their yearly removal and replacement would adversely impact the site. The Forest Service will make a case-by-case decision.

40. An active I&I (Inform and Involve) plan will be carried out during the project. Information will be disseminated to the public on an on-going basis.

41. A contingency plan is to be prepared to identify measures to prevent spillage of materials in transport to and from the Wilderness and materials stored onsite. This plan should identify corrective measures should accidental spillage occur, and planned methods of recovery and restoration of the site.

42. To lessen the impact of this project on recreation use, shutdowns will occur during expected peak use times on the 4th of July and Labor Day weekends.

43. An Air Operations Plan will be prepared by Pacific Coast Mines for approval by the Forest Service. This will include such subjects as a crash plan, safety at helicopter landings, etc.

44. The Forest Service will have a project administrator assigned to the operation. Forest Service employee(s) will inspect the day-to-day activities of the project, record wildlife observations, conduct a photo record, and keep an on-going written assessment of impacts of the project.

45. It is recommended that foot travel to the drill sites be in groups.

46. A systematic check for leaks, loose connections, potential breaks in fuel containers, fuel lines, fuel transfer apparatus, etc., will be required daily to reduce the possibility of spillage of contaminating liquids within the Wilderness.

47. Operator will be required to furnish and use a portable chemical toilet at the drilling sites. The toilet will be capable of receiving human wastes. Effluent will be removed from the Wilderness and dumped at an approved disposal site.

48. Carrying or using firearms by personnel while working on this operation is not authorized.

49. All materials and supplies used in the drilling operation will be removed from the Wilderness and appropriately disposed of upon completion of the operation.

50. Open campfires will not be allowed within the Wilderness. Portable stoves used for warming purposes during the drilling operation will be confined to the drilling platform.

51. Marking of claim corners will be kept to a minimum within the Wilderness consistent with existing laws.

52. Measures will be taken to prevent air and noise pollution from machinery used in the drilling operation. Motors such as the water pump engines will be well-muffled or covered to minimize exhaust noise. Other methods which will be employed will be extensions on the exhaust pipe of the drill rig, and directing the exhaust away from obstructions which tend to magnify the noise level. All machinery being used will be kept properly tuned to insure that exhaust emissions will be kept to a minimum.

53. A monitoring team will be established to handle the situation should a bear be spotted in the immediate project area. If a bear is spotted, this team should be immediately notified. This team will evalute the situation and determine appropriate measures to be taken (see Bear Monitoring Plan, APPENDIX F).

54. If a raptor nest is identified in the vicinity of drill sites or flight corridor an effort will be made to minimize project-associated disturbance until fledging is completed.

55. A water monitoring program has been set up for the 1982-1983 drilling seasons (see map of water quality monitoring stations, APPENDIX G). This will enable us to gain information on the cumulative water quality effects of the exploratory drilling operations. The sites were selected because of their proximity to water collection points, drilling sites, or downstream from the above. Based on the locations of future drill holes, additional sites may be added in the future. It is planned that these sites, however, be sampled for the duration of the exploratory drilling project.

56. To the maximum extent practical, drill rigs will be designed and placed to minimize potential adverse visual impacts from foreground, middleground, and background vantage points utilizing existing natural features.

57. Work crews will be careful with foodstuffs and not leave food scraps on the site. Food scraps will be removed from the project area on a daily basis or stored in air-tight containers.

58. Water quality monitoring will be done as explained in APPENDIX H under Water Quality Monitoring Plan.

59. The Fish and Wildlife Service Complete Compensation Plan submitted as a result of the consultation process will be complied with. The item(s) that affects Pacific Coast Mines are:

    To be included at completion of consultation process.

60. Individuals involved with the project in an employment status will not be allowed to bring domestic animals on the project sites with them.

61. The operator will be required to protect all fuel and oil containers with plastic or canvas during storm events and nonworking hours.

62. Prior to each drilling season, the Forest Service will review the necessary water use permits from the Department of Natural Resources to insure proper safeguards to the aquatic ecosystem. If severe drought occurs, it may be necessary to use alternative water sources.

63. The operator shall comply with applicable Federal and State air quality standards, water quality standards, and standards for disposal and treatment of solid waste. The nondegradation policy will follow the Montana Water Quality Act applying to A-1 quality standards.

64. On and off control valves will be installed on the end of the water lines supplying water to the drill sites. The valves will be used to control the flow of water during such times that it is not specifically being used in the actual drilling process. The exception to this requirement will be during periods of cold weather when the potential for water lines freezing exists. During such times the water may be allowed to flow at sufficient volume to prevent water lines from freezing.

65. Efforts will be made to prevent water spills from carrying oils and lubricants to the soil and bedrock from the drill pad. Burlap check dams will be employed if minor spills occur and during anchor hole drilling to keep fluids and sediment onsite.

66. 3-M oil sorbent material or equivalent shall be placed underneath the drilling deck to prevent fluids from contaminating soil or flowing towards runoff channels during storm events.

67. Drill sites will not be located less than 150 feet from a live stream or runoff channel. All proposed drill sites will be reviewed prior to construction and approved by the project administrator.

IX. CONSULTATION WITH OTHERS

A. Interdisciplinary Review

Comments and inputs from a variety of Forest Service personnel and specialists were received and incorporated into the project assessment. The following is a list of those who provided input:

Daniel Albers	Minerals and Land Forester (Author)	Cabinet RD
Ronald Humphrey	District Ranger	Cabinet RD
Bill Rockwell	Resource Forester	Cabinet RD
Dave Henry	Wildlife Biologist	Cabinet RD
Chris Hardy	Hydrology Technician	Cabinet RD
Gary Morgan	Staff Officer-Lands, Minerals, and Recreation	Kootenai NF
Bill Morden	Forest Supervisor	Kootenai NF
Chuck Brooks	Staff Officer-Resources	Kootenai NF
Alan Christensen	Wildlife Biologist	Kootenai NF
Bill O'Brien	BPA Coordinator	Kootenai NF
Brian White	Mining Engineer	Kootenai NF
Sandy Matheny	Public Information Officer	Kootenai NF
Gary Hathaway	Landscape Architect	Kootenai NF
Frank Hingley	Forest Dispatcher	Kootenai NF
Larry Meshew	Forest Hydrologist	Kootenai NF
Lou Kuennen	Soils Specialist	Kootenai NF
Cumulative Effects Task Force		Kootenai NF

APPENDIX

* Will be added to Final Environmental Assessment

PLAN OF OPERATIONS (2 ye

APPENDIX A

Central/Western Zones

COPPER GULCH (CG CLAIM GROUP)
Name of Property or Claims

The name and legal mailing address of the operators (and claimants if they are not the operators) and their lessees, assigns, or designees.

	Name	Address
1.	Pacific Coast Mines, Inc.	3075 Wilshire Blvd.
2.	(U.S. Borax & Chemical Corp.)	Los Angeles, Ca. 90010
3.		
4.		
5.		
6.		
7.		
8.		

LOCATION: T 27 N R 32 W Section s 15,16,17,20,21,22,27,28,29

Show location of proposed area; claim boundaries; existing or proposed roads or access routes, and approximate location and size of areas where surface resources will be disturbed.

NORTH

See Attached Exhibit #1

Scale

SKETCH OF AREA

(Supplemental maps or sketches may be attached)

TYPE OF OPERATION

Describe or identify the type of operation proposed and how it would be conducted (include information on earthmoving and site clearance and type of equipment to be used).

Mineral exploration, including geologic mapping, geochemical sampling, and two to four drill holes (Exhibit #1) are proposed for 1982 and an ~~additional four to six drill holes are planned for 1983, if the 1982 program is successful.~~ A helicopter-transported Longyear 38 or equivalent core drilling rig will be utilized on drill sites approved by the USFS. Drilling depths will be 500-1000 feet. If drill sites cannot be located ~~directly on bedrock, wood cribbing from outside the wilderness will be~~ used to support the drill equipment. A small camp is proposed to house personnel (2 drill shifts- 2 geologists, 1 cook) and minimize helicopter flights to remote sites.

ACCESS

Type and standards and methods of transporation for existing roads.

No road is available to remote sites.

Type and standards and method of transportation for proposed roads.

Not applicable.

ENVIRONMENTAL CONSIDERATIONS

Anticipated effects of the operation involving air and water quality, solid waste disposal, soil, vegetation, or other surface resources.

U.S. Borax is aware of the sensitive nature of a project in or near a Wilderness area. Therefore, our project will be designed and carried out to minimize the impact of our activities. There will be intermittent noise from our single drill and the helicopter. To minimize our helicopter flights, we propose several mobile camp sites and helipads to service our drilling operations (Exhibit #1). Only flight corridors approved by the USFS will be utilized. As previously mentioned, surface

Measures to be taken to minimize surface resource disturbance. (see attachment)

Most of these measures have been discussed in the previous section on "effects". We believe the single-most disturbance of our activity is the helicopter usage. By maintaining a small camp during 1982, we will eliminate our otherwise daily need for a helicopter and thus drastically reduce our impact on local private citizens, recreationalists, and wildlife, particularly the bear and goat populations. Any grizzly bear sighted during the term of our operation will be reported to the USFS.

Measures to be taken to reclaim surface resource disturbance incurred during operations.

As soon as exploratory drilling is completed, all project equipment will be removed and reclamation of the drill sites and helipads will begin. Surfaces will be re-contoured by hand to restore original landscape, according to guidelines of the USFS. Soils will be stock-piled to be spread later for revegetation, if necessary.

Operations will begin on June 1 and end on about July 31 for the years of 1982 and 1983.

ENVIRONMENTAL CONSIDERATIONS (continued)

disturbance will be minimal around drill sites - site clearance will not be necessary due to cribbed wood platforms. All petroleum products and solid wastes will be collected and removed from USFS land and properly disposed of to prevent any degradation of water quality. Water sources for the drilling operation include Chicago Creek and Copper Creek, from which approximately 12 gallons of water per minute is needed to sustain our drilling. A minimum impact mechanical pumping system and water hose may be needed should nearby water in Chicago and Copper Creeks dry up during the season.

Plan Submitted By:

Thomas A. Hennrikus
Name

Senior Geologist
Title

12/15/81
Date

Plan Received by Authorized Officer:

Name

Title

Date

Plan (Approved/Not Approved) (Authorized Officer)
(If not approved, state reasons)

Name

Title

Date

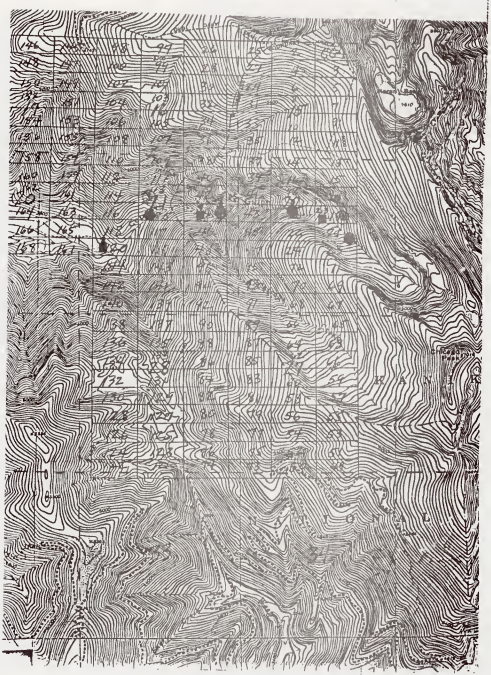
CG Claim Group EXHIBIT #1

Sanders County, Montana

Unsurveyed Township 27 North, Range 32 West, Montana Meridian

Located September 11 - October 10, 1981 by Pacific Coast Mines, Inc.
3075 Wilshire Boulevard
Los Angeles, California
90010

North 1" = 2000'



● ~ proposed drill site

■ ~ proposed helipads & mobile camps

PLAN OF OPERATIONS (2 yea

Central/Western Zones

Rock Peak (Wynn Claims)
Name of Property or Claims

The name and legal mailing address of the operators (and claimants if they are not the operators) and their lessees, assigns, or designees.

	Name	Address
1.	Pacific Coast Mines, Inc.	3075 Wilshire Blvd.
2.	(U.S. Borax & Chemical Corp.)	Los Angeles, CA. 90010
3.		
4.		
5.		
6.		
7.		
8.		

LOCATION: T 27 N R 31 & 32 W Sections 13, 19, 25, 35 & 36 in R 32 W
19, 30, & 31 in R 31 W

Show location of proposed area; claim boundaries; existing or proposed roads or access routes, and approximate location and size of areas where surface resources will be disturbed.

NORTH

See Attached Exhibit #1

Scale_____

SKETCH OF AREA

(Supplemental maps or sketches may be attached)

TYPE OF OPERATION

Describe or identify the type of operation proposed and how it would be conducted (include information on earthmoving and site clearance and type of equipment to be used).

Mineral exploration, including geologic mapping, geochemical sampling, and two to five diamond drill holes (Exhibit #1) are proposed for 1982. An additional six to eight drill holes are planned for 1983, should the 1982 program be successful. A helicopter-transported "Hydra-Wink" or equivalent core drilling rig will be utilized on the drill sites approved by the USFS. Drilling depths will be less than 600'. If drill sites cannot be located directly on bedrock, wood

ACCESS (see attachment

Type and standards and methods of transporation for existing roads.

No road is available to remote sites.

Type and standards and method of transportation for proposed roads.

Not applicable

ENVIRONMENTAL CONSIDERATIONS

Anticipated effects of the operation involving air and water quality, solid waste disposal, soil, vegetation, or other surface resources.

U.S. Borax is aware of the recreational, scenic, and hunting values as well as the endangered grizzly bear population and the mineral potential of the Cabinet Wilderness. Our project will be designed and carried out to minimize the impact of our activities. There will be intermittent noise from our drill and helicopter. To minimize our helicopter flights, we propose several mobile camp sites and helipads to service our drilling operations (Exhibit #1). Only flight corridors approved by the USFS

Measures to be taken to minimize surface resource disturbance. (see attachment)

Most of these measures have been discussed in the previous section on "effects". The single-most disturbance of our exploration activity at Rock Peak is the helicopter usage. Similar to our proposal in Copper Gulch, we plan to minimize our impact on private citizens, recreationalists, and wildlife by working out of a small local camp. Any grizzly bear sighted during the term of our operation will be reported to the USFS.

Measures to be taken to reclaim surface resource disturbance incurred during operations.

As soon as exploratory drilling is completed, all project equipment will be removed and reclamation of the drill sites and helipads will begin. Surfaces will be re-contoured by hand to restore original landscape, according to guidelines of the USFS. If soil must be disturbed, it will be stockpiled and spread later for re-vegetation, if necessary.

Operations will begin on June 1 and end on about September 30 for the years 1982 and 1983.

Plan Submitted By:

Thomas A. Henricksen
Name Thomas A. Henricksen

Senior Geologist
Title Senior Geologist

12/15/81
Date

Plan Received by Authorized Officer:

Name

Title

Date

Plan (Approved/Not Approved) (Authorized Officer)
(If not approved, state reasons)

Name

Title

Date

TYPE OF OPERATION (continued)

cribbing from outside the Wilderness will be used to support the equipment. A small mobile camp is proposed to support our operation (4 drillers, 2 geologists, 1 cook) and minimize helicopter flights to remote sites.

ENVIRONMENTAL CONSIDERATIONS (continued)

will be utilized. Surface disturbance will be minimal around drill sites because of the use of cribbed wood drill platforms. All petroleum products and solid wastes will be collected at the sites and removed from USFS land and properly disposed of to prevent any degredation of water quality. Water sources for the drilling operation include the small lake on claim Wynn 32 and tributaries to Rock Creek. During June and early July, there should be abundant spring runoff to support the drill which uses approximately 12 gallons per minute. A small diesel-powered pump may be needed to pump water, should gravity fed sources not be available.

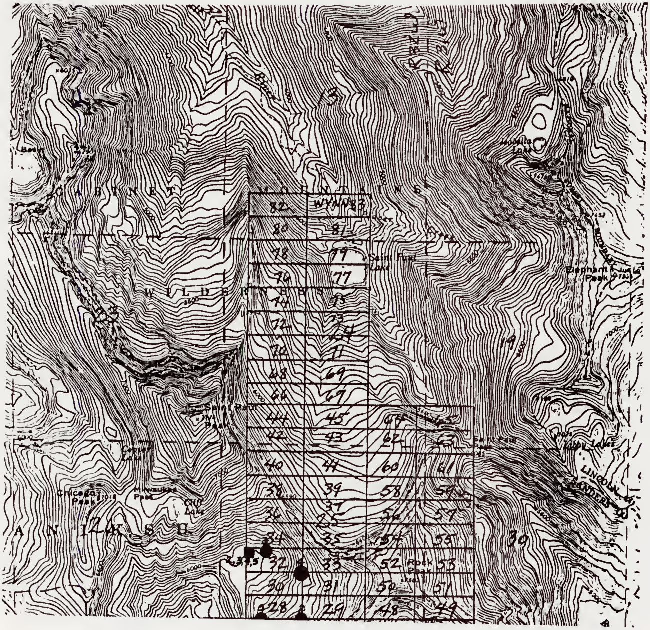
Wynn Claim Group EXHIBIT #'

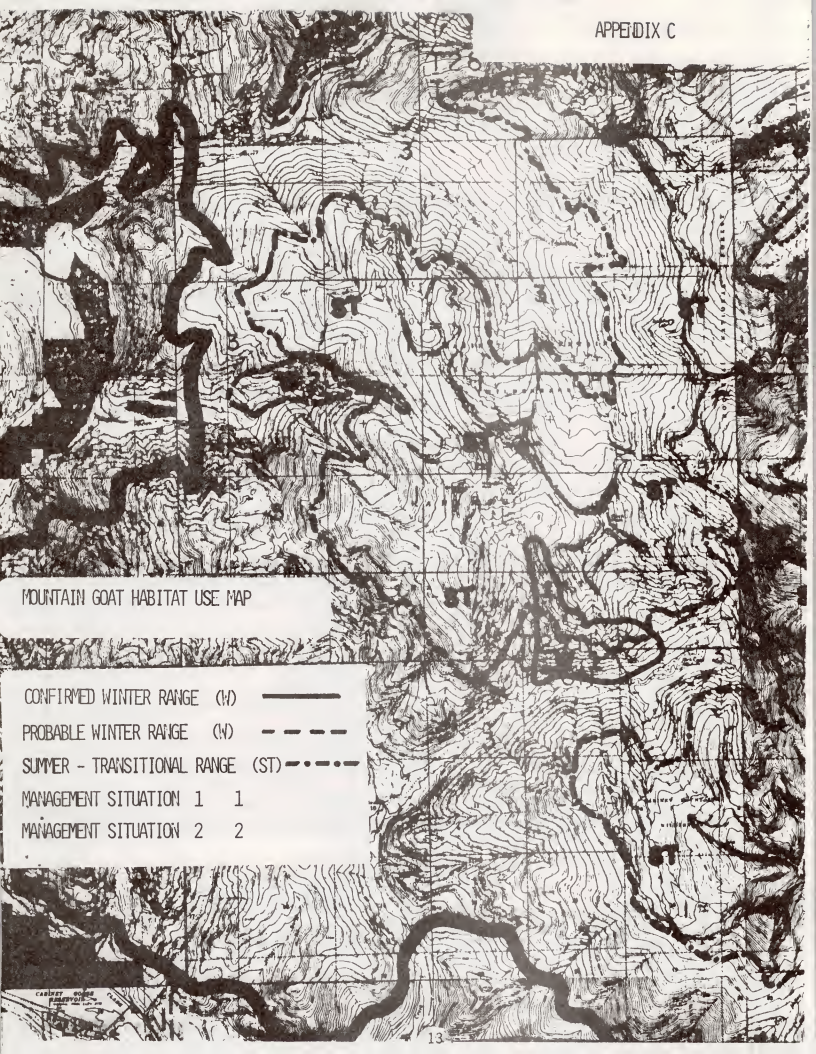
Sanders County, Montana

Unsurveyed Township 27 North, Range 31 and 32 West, Montana Meridian

Located September 10- October 20, 1981 by Pacific Coast Mines, Inc.
3075 Wilshire Boulevard
Los Angeles, California
90010

North 1" = 2000'




MOUNTAIN GOAT HABITAT USE MAP
CONFIRMED WINTER RANGE (W)
PROBABLE WINTER RANGE (W)
SUMMER - TRANSITIONAL RANGE (ST)
MANAGEMENT SITUATION 1 1
MANAGEMENT SITUATION 2 2

COMPILATION SHEET

Subdrainage Copper Gulch Ref. Maps 14

Total Acres 5750

SPRING

Components	Acres	Quality Rating	Weighted Acres
L/H Gradient Stream Bottom	195.5	3	586.5
Marsh	—	1	
Graminoid Sidehill Park	82.3	2	164.6
Mixed Shrubfield/Snowchute	205.7	3	617.1
Snowchute	—	3	
Total	483.5	Total	1368.2

Seasonal

Quality Index = Weighted / Net = 2.829

Component Index = 3

Spring Habitat Units 4105

SUMMER

Components	Acres	Quality Rating	Weighted Acres
Wet Meadow	15.5	2	31
Drainage Meadow	5.3	3	15.9
Snowchute	—	3	
Graminoid Sidehill Park	82.3	1	82.3
Mixed Shrubfield/Snowchute	205.7	2	411.4
Alder Shrubfield	—	3	
Total	308.8	Total	540.6

Quality Index = Weighted / Net = 1.750

Component Index = 4

Summer Habitat Units 2162

FALL

Components	Acres	Quality Rating	Weighted Acres
Vacc Shrubfield	185.8	3	557.4
Timber/Vacc Shrubfield	701.6	2	1403.2
Mixed Shrubfield/Snowchute	205.7	2	411.4
Mixed Shrubfield/Cutting Unit	—	2	
Mixed Shrubfield/Burn	—	3	
L/H Gradient Stream Bottom	195.5	1	195.5
Total	1288.6	Total	2567.5

Quality Index = Weighted / Net = 1.992

Component Index = 4

Fall Habitat Units 10270

DENNING

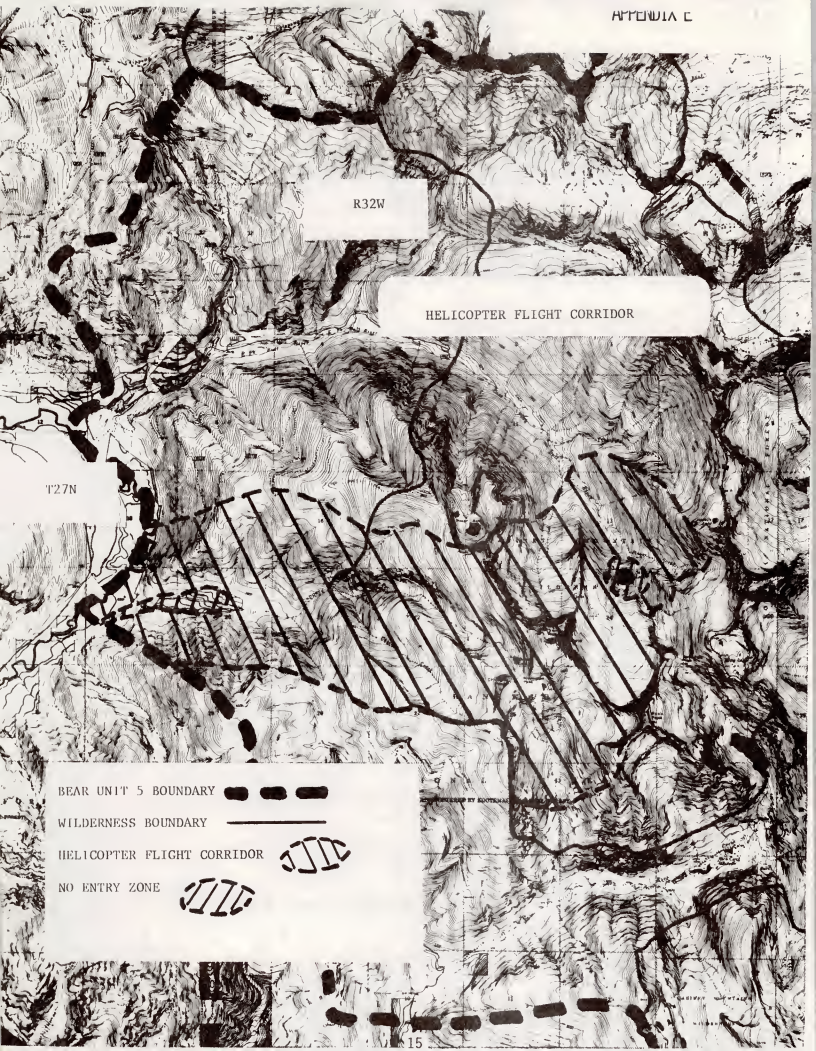
Components	Acres	Quality Rating	Weighted Acres
Xete Sidehill Park	179	3	537
Timber/Vacc Shrubfield	701.6	1	701.6
Vacc Shrubfield	185.8	1	185.8
Total	1066.4	Total	1424.4

Quality Index = Weighted / Net = 1.335

Component Index = 3

Denning Habitat Units 4271

TOTAL: 20808


R32W
HELICOPTER FLIGHT CORRIDOR
T27N
BEAR UNIT 5 BOUNDARY
WILDERNESS BOUNDARY
HELICOPTER FLIGHT CORRIDOR
NO ENTRY ZONE

BEAR MONITORING PLAN

BEAR MONITORING TEAM

(1) Montana Department of Fish and Game Representative

(2) Project Administrator, this person will be notified first.

(3) District Wildlife Biologist

Alternative Monitoring Team

(1) Representative, Montana Department of Fish and Game

(2) District Ranger, Cabinet Ranger Station

(3) Forest Wildlife Biologist

Consulting Members

(1) Project monitor(s)

(2) Wildlife Biologist from Forests, Region, and Universities, as they are needed and/or available.

Objectives to Evaluate Situation When Bear is Reported in the Project Area

(1) Verify that there is a bear in the area and if the bear is a grizzly.

(2) Determine if there is a potential conflict between the bear and the exploration activity.

(3) Recommend any action to the District Ranger.

Process of Activating Monitoring Group

Sources of information to activate group:

(1) Project monitor(s)

(2) Administrator for the Forest Service on the Project Site.

(3) Exploration project personnel

(4) General public

(5) Other agency personnel (Montana Department of Fish and Game, Forest Service, State Department of Lands, etc.).

Action To Be Taken

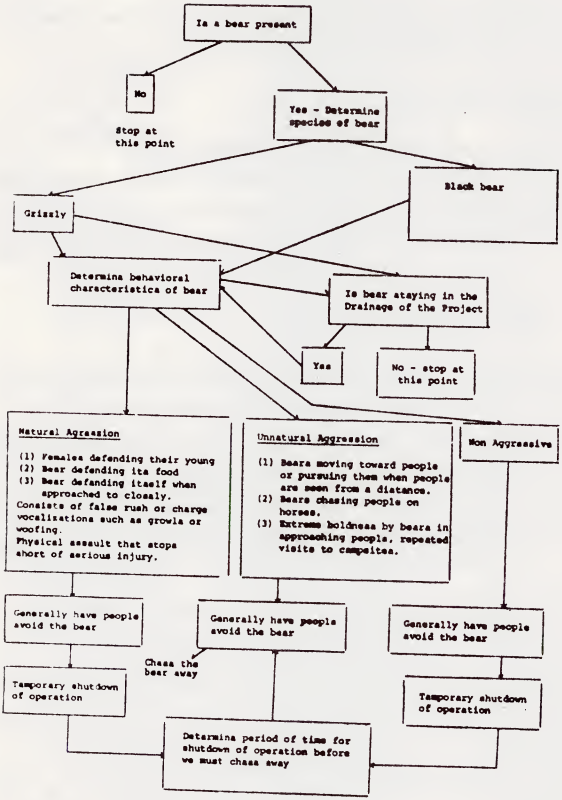
(1) Immediately upon being notified of a possible grizzly in the project area the Project Administrator will notify the remainder of the members on the monitoring group. They will travel to the site and make observations and evaluate the situation on the site.

Organization Actions of the Group

(1) Establish lines of communications within the monitoring group and between the group, exploration personnel and project monitor.

(2) Should a bear be reported, evaluate the situation, and reach a group decision on how to handle it, A possible decision matrix is included on the following page. This matrix should be used only by the monitoring team with a wildlife biologist that is knowledgeable of the behaviorial characteristics of the grizzly bear. A layman attempting to use the matrix could make serious judgmental errors.

Possible Decision Matrix



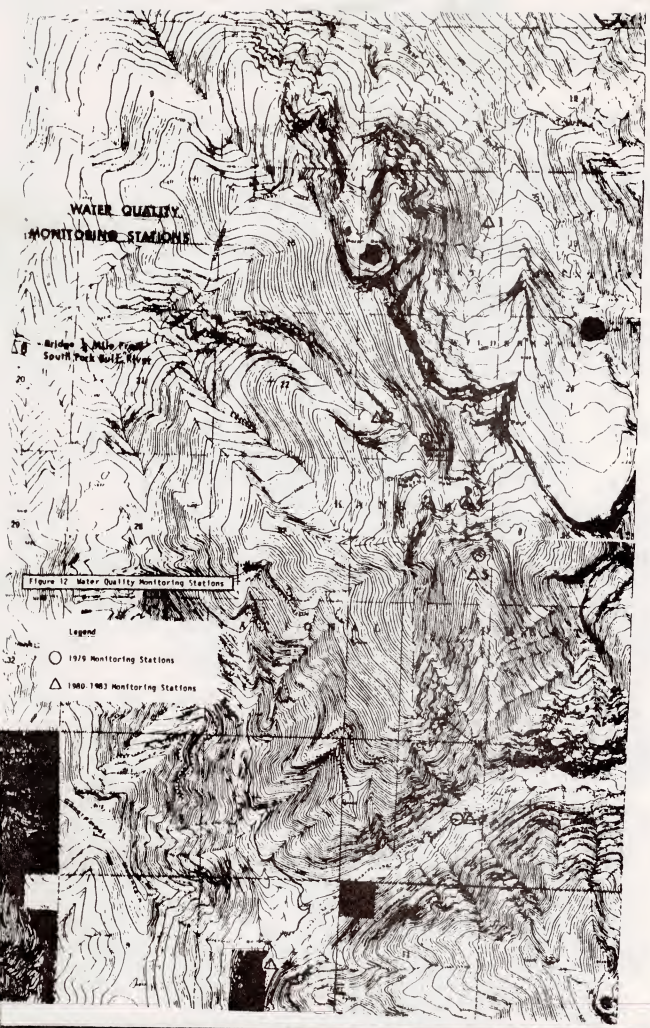


Figure 12 Water Quality Monitoring Stations

Water Quality Monitoring Plan

The water quality monitoring program for Pacific Coast Mines' exploration projects will be conducted in conjunction with the on-going program established for ASARCO's Chicago Peak Project. With both projects located in the same area of influence, the 9 sites and type of monitoring identified for the Chicago Peak Project will be used to assess cumulative water impacts. There is the possibility of installing one additional monitoring site in the lower part of Copper Gulch below Pacific Coast Mines' proposed project area. The specific location of this site will be determined upon review of specific drill site locations. The water quality monitoring plan for the Chicago Peak Project has been included for reference.

The water quality project is broken into two sections: the first to monitor the short term inputs of oil and grease compounds, the second to monitor the downstream watershed effects of the exploratory drilling.

Part I - Oil and Grease Monitoring

Based on the locations and proximity of both drill rigs and water pumping facilities, a potential exists for oil and grease compounds to enter the stream system. Evaluation of the extent of this potential problem will be addressed with a combination of techniques. The project monitors will be equipped with a camera to record any type of oil or grease spill. A sample will be collected if determined feasible.

To record and minimize the potential effects of any such spills in water, absorbable materials such as 3-M Brand sorbent will be installed in close proximity to the machinery. In streams, these would be located just below machinery. In lakes it would be located a few feet from the shoreline machinery. This absorbable material would be so located as to be in direct contact with the surface water film, the zone where these compounds would normally be found.

Sites 1, 2, 3, 4, and 5 would be monitored with this technique.

Part II - Exploratory Drilling Consequences

Heavy metals will be monitored at sites 6, 7, 8, and 9. These sites are all located well-down on their respective drainages, providing an opportunity to measure some of the downstream changes below the exploratory holes.

CHICAGO PEAK - ASARCO WATER QUALITY SAMPLING

SITE NUMBER & DESCRIPTION	* FREQUENCY OF HEAVY METAL SAMPLE (MONTANA BUREAU OF MINES LAB)	OIL/GREASE MONITORING
Site 1 Upper East Fork Bull River		Yes
Site 2 Copper Gulch		Yes
Site 3** Copper Gulch		Yes
Site 4** Cliff Lake		Yes
Site 5 Upper Rock Creek tributary, south of Cliff Lake		Yes
Site 6 Lower Station on tributary sampled at Site 5	Late summer low level	No
Site 7 Rock Creek above confluence with tributary sampled at Sites 5,6	Late summer low level	No
Site 8 Copper Creek	Late summer low level	No
Site 9 Lower East Fork Bull River	Late summer low level	No

This section presents the possible environmental effects associated with the proposed project. The alternatives (2 and 4) are rated on the significance, duration, and magnitude of the environmental change. If this impact can be minimized or reduced by incorporating a mitigating requirement into the E.A., the number of the requirement is shown.

(1) Significance of effect - This illustrates the relative importance of each change.

0 - Not Important

1 - Little Importance

2-3 - Moderately Important

4-5 - Very Important

(2) Duration - This will predict the length of time the environment will be affected.

0 - None

1 - 1 day - 5 months

2 - 5 months - 2 years

3 - 2 yrs. - 20 yrs.

4 - 20 yrs. - 100 yrs.

5 - ≥ 100 yrs.

(3) Magnitude - This is a prediction of the size and extent of the expected environmental effect, with the positive effects of the mitigating requirement considered.

0 - No Change

-5 - Maximum negative impact

+5 - Maximum positive impact

(4) Mitigating Requirements - If it was possible to minimize or reduce the adverse effect, a mitigating measure was incorporated into the E.A. The number of that requirement is shown in the column titled "Addressed in Mitigating Requirement Number". That number corresponds to the mitigating requirement in the section "Management Requirements and Constraints".

Possible Environmental Effects	Significance of Environmental Effect		Duration		Magnitude		Addressed in Mitigating Requirements No.
Alternatives	2	3	2	3	2	3	
(1) Motorized equipment in the project area will create unnatural noise in the Wilderness throughout the life of the project. This will decrease the wilderness experience to people in the project area and adjacent areas.	5	5	2	2	-4	-4	42, 55
(2) The project will be an onsite nonconforming use, and will conflict with recreation use in the area and adjacent areas for a period of two operating seasons.	5	4	2	2	-5	-4	56
(3) If the timing of drilling placement is not controlled, the impacts of the project may be distributed throughout the claim block for the duration of the activity.	3	3	2	2	-2	-2	17
(4) Anchoring the drill rigs with cement will leave a long term impact on the Wilderness.	1	1	2	2	0	0	30, 31
(5) Helicopter activity in the vicinity of Copper Gulch and Rock Peak will detract from Wilderness visitors' enjoyment.	4	4	2	2	-3	-3	12
(6) Drillers in the area can have a detrimental effect on the Wilderness resource, by not adhering to the "wilderness ethic."	5	4	2	2	-3	-2	
(7) Helicopter activity in the project area will be viewed from the Bull River Highway.	0	0	2	2	0	0	
(8) Helicopter traffic ferrying equipment and crews back and forth from the landing to the drill sites will be visually offensive to some Wilderness users.	4	4	2	2	-3	-4	11, 12

Possible Environmental Effects	Significance of Environmental Effect		Duration		Magnitude		Addressed in Mitigating Requirements No.
Alternatives	2	3	2	3	2	3	
(9) The possibility exists of the helicopter pilot using the craft for unauthorized use within the Wilderness.	1	2	1	1	-1	-1	11
(10) The possibility exists of the helicopter crashing in the Wilderness.	1	1	4	4	-1	-1	18, 19, 33, 41, 43
(11) There is the possibility of spillage and leakage of materials stored onsite.	3	3	4	4	-3	-3	33, 41, 43, 46
(12) The possibility exists of spillage of waste and materials being transported to and from the Wilderness.	4	4	4	4	-3	-3	33, 41
(13) Sludge from the drilling operation, if dumped onsite, will be visually offensive, detrimental to plant and animal life, and have an adverse effect on the wilderness character.	4	4	2	2	-2	-2	23, 26, 65
(14) Permanent claim corner markers will leave behind the unnatural presence of man within the Wilderness.	2	2	5	5	-1	-1	51
(15) Camping of work crews within the Wilderness will create visual impacts, site disturbance, and detract from the Wilderness character.	4	0	3	0	-4	0	5
(16) Workers in the Wilderness will add human waste which will be concentrated in one area.	3	1	2	2	-3	-1	47
(17) The drill sites will be visible as middleground and background views from various points within the Wilderness.	3	3	2	2	-2	-2	56

Possible Environmental Effects . Alternatives	Significance of Environmental Effect 2	 3	Duration 2	 3	Magnitude 2	 3	Addressed in Mitigating Requirements No.
(18) The use of two drilling rigs and other mechanical equipment on the project add pollutants to the air.	1	1	2	2	-1	-1	52
(19) When drilling near the lake or stream systems sludge could enter the water, reducing water quality, impacting aquatics, and adding siltation.	4	4	3	3	-2	-2	26, 65, 67
(20) Chemicals added to the water during drilling (bentonite and polymer additives), may visually scar the area, and have an adverse impact on plant and animal life.	3	3	2	2	-2	-2	23, 24, 28
(21) Concentrations of people within the Wilderness will increase the chance of human/grizzly and black bear conflicts. This potential may increase with work crew camps.	4	3	2	2	-3	-2	5, 45, 48, 52
(22) Food and garbage at the drilling sites may cause bears to frequent the area.	4	2	2	2	-3	-2	57
(23) Crews working in the area may overreact, resulting in possible harm to bears which may wander into the area.	4	3	2	2	-2	-1	48
(24) Use of the helicopter to recon the claim block will disturb the game in the area and detract from recreation enjoyment.	1	1	1	1	-1	-1	11, 12, 14
(25) The drilling operation may reduce the use of the habitat by grizzly bears in the area.	5	5	2	2	-4	-3	10, 12, 14, 15, 18
This effect may include the following impacts:							

Possible Environmental Effects	Significance of Environmental Effect		Duration		Magnitude		Addressed in Mitigating Requirements No.
Alternatives	2	3	2	3	2	3	
a. Use of possible grizzly travel corridors may be disrupted due to helicopter and drilling activity.	5	5	2	2	-4	-3	12, 14, 15, 16, 18
b. Selection of grizzly denning sites may be impacted by drilling activity.	5	5	2	2	-4	-3	15
(26) The drilling operation will displace wildlife out of the area. This could be temporary on a seasonal basis or more long term for the life of the project.	5	5	2	2	-4	-4	10, 11, 12, 14
(27) This activity may decrease the use of habitat by mountain goats.	5	5	3	3	-4	-3	12, 14, 15, 16
(28) Unrestricted use of the helicopter can impact goat populations by affecting their behavior patterns and possibly survival of new kids.	5	5	4	4	-4	-3	10, 12, 14, 15, 16
(29) Long term displacement of goats may cause the loss of home range knowledge to future generations.	5	5	4	4	-3	-3	12, 14, 15, 16
(30) Drillers on the project may harass wildlife in the area.	2	2	2	2	-1	-1	50
(31) The foreground viewing character will be unacceptable for the life of the project.	3	3	2	2	-3	-3	56
(32) Aquatic life present in the lakes and streams may be removed during the water pumping operation.	2	2	2	2	0	0	27

Possible Environmental Effects Alternatives	Significance of Environmental Effect 2	 3	Duration 2	 3	Magnitude 2	 3	Addressed in Mitigating Requirements No.
(33) Chemicals added to the drill water may be toxic and have an adverse effect on aquatic populations in the lake and stream systems.	2	2	3	3	-2	-2	23, 24, 28
(34) Disposal of water used in the drilling operation may cause soil disturbance and erosion of the shallow soils from the drilling area.	4	4	4	4	-2	-2	24, 64
(35) Disposal of decanted waste water onto talus slopes may have a detrimental effect on wildlife species using them such as marmots and pikas.	2	2	2	2	0	0	23, 23, 63
(36) Discharge water disposed onto talus slopes may eventually enter and reduce the quality of ground water in the area.	4	4	4	4	-2	-2	23, 24, 63
(37) Materials stored near the lakes and streams could enter the water, affecting water quality.	4	4	4	4	-2	-2	26, 27, 61
(38) Pumping large quantities of water from any one lake or stream system could have detrimental effects on water quality, quantity, and the biota of the system.	4	4	3	3	-3	-3	62
(39) The possibility exists of hitting ground water in the drilling operation. This has the potential to increase the heavy metal content of the lakes and stream system in the project area.	1	1	3	3	-1	-1	24, 63
(40) Continual excessive drawdown of water sources in the area will have a cumulative impact on the ground water system.	3	3	2	2	-1	-1	63

Possible Environmental Effects	Significance of Environmental Effect		Duration		Magnitude		Addressed in Mitigating Requirements No.
Alternatives	2	3	2	3	2	3	
(41) Construction of drilling platforms on steep slopes will cause soil and vegetation disturbance.	3	3	3	3	-2	-2	30, 31, 37
(42) Excavation at drill sites to accommodate the drill rig will contribute to soil disturbance.	3	3	4	4	-2	-2	30, 31
(43) There will be minimal site disturbance within the Wilderness from temporary landing pads.	1	1	2	2	0	0	8, 30
(44) Construction of a helicopter staging area may cause soils to erode in the landing area and will alter the visual resource.	2	2	3	3	-1	-1	8, 30
(45) Soil disturbance may occur in areas of high use; for example, at equipment and fuel storage areas.	4	4	4	4	-3	-3	29, 34, 36
(46) Trails formed in the Wilderness will destroy any unique geological or vegetative features in the trail ROW.	3	3	3	3	-2	-2	9, 34, 35
(47) Some trees may have to be cut for helicopter landings and to facilitate movement and placement of the drill rigs.	1	1	4	4	-1	-1	4
(48) Drilling more than one hole from each site with the larger drills will increase the amount of time on a site and increase the chance of soil, water, and vegetative disturbance.	3	3	4	4	-2	-2	29, 30, 31, 32
(49) Drawdown of high elevation water sources may impact alpine vegetation.	2	2	3	3	-1	-1	62

Possible Environmental Effects	Significance of Environmental Effect		Duration		Magnitude		Addressed in Mitigating Requirements No.
Alternatives	2	3	2	3	2	3	
(50) The risk of person-caused wildfires will be increased with men and equipment in the project area.	2	1	2	2	-2	-1	21, 50
(51) Warming fires will create a long term visual impact on the Wilderness resource.	2	1	2	2	-2	-1	50
(52) Warming fires will reduce natural fuels present in the project area.	2	1	2	2	-1	0	50
(53) This activity consisting of two-year drilling program in the Wilderness will be undesirable to some members of the public and is highly controversial in nature.	4	4	2	2	-4	-4	40, 44
(54) There may be a conflict over the use of the Chicago Peak Road for the drilling operation and the Government Ridge timber sale.	1	1	2	2	0	0	7
(55) This increased activity in grizzly bear habitat may affect the timing of other management activities in the vicinity of the project.	0	0	2	2	-1	-1	
(56) Working early in the spring the soils will be saturated and there will be a high probability of unacceptable damage.	3	3	4	4	-2	-2	15, 32, 34, 36
(57) This proposed activity combined with ASARCO's Chicago Peak exploration project will result in cumulative impacts on the Wilderness resource and recreation experience.	4	4	2	2	-3	-3	

Possible Environmental Effects	Significance of Environmental Effect		Duration		Magnitude		Addressed in Mitigating Requirements No.
Alternatives	2	3	2	3	2	3	
(58) Increased helicopter activity associated with the proposed activity and ASARCO's exploration project will increase safety hazards and disturbance to private landowners along Bull River. Of particular concern is the impact on the animals on Copper Creek Conserve owned by Judy Evans.	4	4	2	2	-2	-3	11, 12, 18, 19
(59) Two helicopters operating in the same flight corridors will increase potential safety hazards.	3	3	2	2	-2	-3	18, 19
(60) Compensation measures implemented to provide additional space for grizzly bear security may adversely affect public use of National Forest land for a variety of recreational uses (i.e., hiking, picnicking, berry picking, etc.).	0	0	0	2	0	-3	

APPENDIX J

CALCULATION OF BOND*

* Will be added to Final EA

2670 Wildlife

Biological Evaluation for Proposed Copper Gulch and Rock Peak Mineral Exploration by U.S. Borax

Forest Supervisor

Biologists Conducting Evaluation - Dave Henry, Wildlife Biologist
Cabinet Ranger District

Alan Christensen - Wildlife Biologist
Kootenai National Forest

I. INTRODUCTION

This evaluation addresses the potential effects of continuing and expanded mineral exploration activities in the Copper Gulch, Chicago Peak, and Rock Peak areas on nationally threatened and endangered species. The proposal outlining these activities was received by the Cabinet District from Pacific Coast Mines Inc. (U.S. Borax and Chem. Corp.) on December 15, 1981. Receipt of the proposal triggered this evaluation.

The U.S. Fish and Wildlife Service lists five species of wildlife as threatened or endangered in Montana (Fed. Reg., January 17, 1979). Of these five species only the grizzly bear is known to occur in the project area. Thus this evaluation considers the potential effects of proposed and on-going activities on grizzly bears.

During the past few years several reports and other pieces of information have been compiled that relate to the grizzly and mineral exploration in the southern Cabinets. This information is not summarized in this evaluation. However, a list of pertinent documents is presented in Attachment 1 for further reading.

In terms of on-going activities that have the potential for adversely affecting grizzly habitat there has been little change since the evaluation of the Chicago Peak (ASARCO Inc.) project in 1980. However, some additional sightings have been reported during the past two seasons. These are summarized below:

Date	Location	Remarks
July 1980	Chippewa Creek	Ad. female and yearling
June 1981	Bull River Valley (near Pellick Ridge)	1 cub (Ad. 1 female presumed to cross highway before observation of cub.
Spring 1981	Basin Creek	1 Adult
September 1981	Libby Creek	Ad. female and 2 yearlings
September 1981	Ozette Lake	1 Adult

II. METHOD OF ANALYSIS

The Kootenai National Forest recently completed development of an analysis process designed to address, in a cumulative fashion, the effect of resource management and related human activities on grizzly habitat. The document (Cumulative Effects Analysis Process; Kootenai National Forest, Region 1, USDA Forest Service, March 19, 1982) describing this process explains in detail the rationale for such a procedure and how it is to be applied.

In general, the process consists of the following steps:

1. Identification of an analysis area. The area ultimately identified encompassed approximately 515,000 acres which contains the main Cabinet Mountains as well as the Scotchman Peaks area in Montana (see Map #1).

2. Mapping of food components and denning habitat components throughout the analysis area.

3. Separation of habitat components into the following seasons of importance:

   a. Spring - den emergence to June 30
   b. Summer - July 1 to August 15
   c. Fall - August 16 to denning
   d. Denning - approximately mid-November to May 1

4. Assessing the quality of components by season, and quantifying the acreage of each component area.

5. Assessing the diversity of components by season.

6. Combining the quality, quantity, and diversity of components by season for each watershed area. The net result was a numerical value ("habitat units") which represents the relative importance of seasonal foraging and denning components in that watershed to grizzly bears.

7. Division of the analysis area into eight smaller subdivisions termed "bear units." These areas average 102 square miles in size and model the home range of adult female grizzlies (5 years).

8. A determination of criteria which should be met in each bear unit to maintain minimum viable situation. The criteria established included the following:

   a. Maintain a lower spatial limit of about 70 square miles to provide for isolation and securtiy needs of grizzlies.

   b. Maintain the above 70 square miles in a relatively contiguous pattern.

   c. Maintain within the useable area seasonal habitat components at a ratio similar to what existed in the bear unit as a whole.

d. Minimize the space and seasonal component areas that are not freely available to grizzlies due to human disturbance factors.

9. Identifying the areas (space) and seasonal components that are not freely available to grizzlies due to human associated disturbance factors. This included factors such as road access, helicopter corridors, timber sales, recreation use areas, and mineral exploration and/or development activities.

10. Determining the status of each bear unit for the 1982 calendar year relative to the criteria established. This process included assessing all existing commitments as of CY 1981. Included were existing roads, outstanding timber contracts, existing mineral and grazing permits, and other known activities.

III. RESULTS OF ANALYSIS

A. Existing Situation

The proposed project occurs within the boundaries of Bear Unit #5. Thus this unit will be the focus of the remainder of this evaluation. However, in order to provide an overall perspective some data is also provided for other bear units. Table 1 summarizes the size of eight bear units within the Kootenai cumulative effects analysis area and the minimum spatial area available for CY 1982. It does not include consideration for activities associated with the proposed (U.S. Borax) project.

Table 1. Total existing spatial area and minimum spatial area freely available in CY 1982 in the Kootenai cumulative effects analysis area.

Bear Unit Number	Spatial Area Within BU Boundary (M^2)	Minimum Spatial Area Freely Available 1982 (M^2)
1	95.8	80.8
2	100.8	89.1
3	94.9	71.3
4	98.6	73.3
5	103.1	64.0
6	108.6	83.3
7	114.3	99.6
8	101.2	73.8

A display of the amount of space and seasonal habitat which is currently assumed to be freely available for grizzly use in Bear Unit #5 is presented in Table 2. The table also shows the percentage of seasonal habitat that lies within zones of disturbance. Spring, summer, and fall seasons were separated into two time periods in order to display the effect of helicopter operation (ASARCO Inc.) on freely available space and habitat units.

It must be cautioned that the existing seasonal habitat unit values as calculated may be somewhat over estimated, particularly in the spring and denning categories. This is true since time did not allow further differentiation of data with respect to such features as aspect, relief, and elevation. A couple of illustrations will clarify this point. Mixed shrubfield/snowchutes are included as spring components in all drainages where they occur irrespective of directional aspect. While south-facing chutes will usually be available for foraging throughout most of the spring season, north-facing chutes may often be available only during the latter part of spring. Elevation in both instances would also affect availability. Similarly, Timbered/Vaccinium shrubfields were categorized as denning components irrespective of elevation. However, most evidence to date indicates that grizzlies tend to den at higher elevations.

Table 2 demonstrates that minimum available space for grizzly bears in Bear Unit #5 is lower than the minimum identified in the cumulative effects analysis. While the 70 square mile figure is flexible and meant as a guideline, the minimum space available in Bear Unit #5 is nearly 10 percent lower. In addition, portions of space available to grizzlies in Bear Unit #5 exist as peninsulas nearly surrounded by activities and therefore, may not be totally useable.

Table 2. Seasonal space, total habitat units, habitat units outside disturbance influence zone, and percent seasonal habitat units within disturbance influence zone in Bear Unit #5, CY 1982.

Season	Space (Mi^2)	Total Habitat Units	HU Outside Influence Zone	Percent HU Within Influence Zone
Spring		70,418		
Den emergence May 31	81.4		64,834	8
*June 1 - June 30	70.1		61,962	12
Summer		67,634		
*July 1 - July 31	67.5		57,826	15
*August 1 - August 15	64.0		51,530	24
Fall		96,177		
*August 16 - Sept. 30	64.0		60,026	38
*October 1 - Den entry	78.3		71,677	25
Denning		18,054		
November 15 - May 1			16,770	7

* Helicopter (ASARCO) operates in Copper Gulch and Rock Creek-Rock Lake drainages.

* Helicopter (ASARCO) operates in Copper Gulch and Rock Creek-Rock Lake and East Fork Bull River-St. Paul Lake drainage.

ATTACHMENT 1

Gale, R. 1979. USDA, Kootenai National Forest. E&T Species Component Reviews - J.F. Properties and Chicago Peak Mining Explorations.

Gritman, James C. 1979. Dept. of Interior, U.S. Fish and Wildlife Service. Biological Opinion, Chicago Peak Mineral Exploration, 1979. 7 pp.

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ASARCO Inc. 1980, 1981, and 1982. Plans of Operation and supplements, Rock Creek Property Exploration Program.

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Christensen, A.G. 1982. USDA, Kootenai National Forest. Cumulative Effects Analysis Process. 11 pp.

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O'Brien, William. 1982. USDA, Kootenai National Forest. Environmental Assessment Cumulative Effects Analysis Process.

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APPENDIX L

FISH AND WILDLIFE, USDI-BIOLOGICAL OPINION*

* Will be added to Final EA

Approval of the Rock Peak portion of the proposal by U.S. Borax involves a different set of circumstances. The U.S. Borax drill sites proposed within the zone of influence generated by ASARCO's activities would probably intensify the existing disturbance in that area by supplementing helicopter disturbance with ground activities. However, it would not involve an increase in the existing zone of disturbance. The U.S. Borax drill site proposed outside of ASARCO's zone of influence would involve new disturbances in an area formerly considered undisturbed and result in further reductions of habitat available to grizzly bears.

As shown in Table 2 this bear unit does not currently meet minimum spatial area criteria established as a part of the Cumulative Effects Analysis Procedure. The primary problem period is summer and fall when the ASARCO operations are at full capacity. With approval of all of the Rock Peak portion of the U.S. Borax proposal, one additional square mile of space would be removed from unencumbered use by grizzly bears.

On the basis of this analysis it appears that additional compensation in Bear Unit #5 may be warranted with or without the proposal by U.S. Borax and the proposal may adversely affect grizzly bears and their habitat.

V. RECOMMENDATIONS

The following recommendations have been formulated to minimize the potential adverse effects of on-going projects as well as the U.S. Borax proposals on grizzly bears. The recommendations reflect known sources of compensation identified in the Cumulative Effects Analysis Process. Even if these recommendations are implemented, Bear Unit #5 will still only approximate the minimum viable spatial needs identified in the cumulative effects procedure and, therefore, management caution is warranted.

1. Formal consultation should be initiated with the U.S. Fish and Wildlife Service based on the situation discussed in this evaluation.

2. Work related overnight camping proposed as a part of the project should not be allowed except in emergency situations. Camping would increase the chances of grizzly/human encounters.

3. The spring and fall seasonal road closures which are currently in effect in Bear, Cable, Poorman, Ramsey, and Libby Creeks should be extended into the summer and early fall season. The result would be a closure in each drainage from April 1 until November 30. This action would result in a gain of approximately 3 square miles of space for potential grizzly use during the summer and fall periods. In addition, these drainages contain high quality and quantity grizzly components.

4. The Goat Rocks Road (#2289) on the Cabinet District should be closed from April 1 until November 30. This action would result in a gain of approximately 1 square mile of space for potential grizzly use during the spring through fall season.

5. If the operating plan(s) are approved, all helicopter flights should stay within the corridors identified for the Chicago Peak Project plus the possible additional influence zone for the Rock Peak Project.

6. Daily helicopter permitted flying time for this proposal should be the same as for the on-going ASARCO Project.

7. Seasonal and operating constraints should match those imposed on ASARCO's activities where appropriate.

B. Proposed Project

The proposed project by U.S. Borax consists of a helicopter supported drilling operation in the Copper Gulch and Rock Peak areas on the Cabinet District (see Map #2). In essence, it is an expansion of the effort continuing in the Chicago Peak area to delineate hard rock mineralization. The operating plans submitted by U.S Borax and the environmental assessment report contain a detailed description of the proposal. The basics of the project are summarized below:

Project Duration

Copper Gulch: June 1 - July 31, 1982 and 1983
Rock Peak: June 1 - September 1982 and 1983

Type of Operation

Copper Gulch: Helicopter supported diamond drilling operation (Longyear 38's) with overnight camping.
Rock Peak: Helicopter supported diamond drilling operation (Hydra-Wink or equivalent) with overnight camping.

Number of Drill Sites

Copper Gulch: Four in 1982, few additional sites in 1983
Rock Peak: Five in 1982, few additional sites in 1983

Number of Drills

Copper Gulch: One Longyear in 1982 and 1983
Rock Peak: One Hydra-Wink or equivalent in 1982 and 1983

Number of Personnel

Copper Gulch: 4 drillers, 2 geologists, 1 cook in 1982 and 1983
Rock Peak: Same as for Copper Gulch

Approval of all facets of the proposed plan of operations would result in an additional reduction of space available for grizzly bear use. Approximately 1 square mile of space currently available would be affected by portions of the Rock Peak operations proposed by U.S Borax. Such an effect would reduce available space to 63 square miles within the August 1 to September 30 time frame. Additionally, up to 216 habitat units could also be affected (less than 1 percent of total habitat units). The Copper Gulch portion of the proposal by U.S. Borax would fall within the influence zone of ASARCO's on-going exploration and, therefore, is assumed to add no new impacts to grizzly bear habitat.

IV. DISCUSSION AND CONCLUSIONS

As discussed in the biological evaluation for the Chicago Peak (ASARCO Inc.) Project in 1980, projects such as the one proposed have the potential for affecting grizzlies in two primary ways. These include direct modification

of existing habitat and modification of grizzly/human interaction probabilities. Interaction in this context applies to both the possibility of direct grizzly/human encounters as well as the degree to which project activities could affect the isolation and security needs of grizzlies. It also includes the degree to which project activities may affect the availability of foraging and denning as well as other habitat factors.

Our observations of the Chicago Peak exploration project continue to indicate that habitat modification aspects of projects such as the one proposed will not have significant adverse effects on the grizzly. Some surface vegetation and soil disturbance has occurred around existing drill sites and helicopter landing areas. However, these modifications, relative to grizzly habitat, have been quite minor in nature.

The greatest potential for adversely affecting grizzlies is with increased human related disturbance associated with the drilling activity, helicopter activity, and camping. The degree to which these activities, particularly the drilling and helicopter activity, may affect the grizzly is difficult to assess. Thus it is important at this point to reflect on the method utilized to determine the zones of disturbances in the analysis process.

In an attempt to quantify the area within the bear unit that remained freely available (outside disturbance influence zones) it was necessary to draw lines on a map and measure areas. These areas represented zones of activity influence and presumed a low level of probable grizzly use. However, in reality few, if any, such hard and fast lines or black and white areas exist. The situation can more realistically be viewed in terms of shades of gray and areas of probability. The area around and adjacent to the drill sites as well as the main helicopter use areas and heavily traveled roads would represent dark gray areas. These dark gray areas would become progressively lighter as the distance increased from the disturbance center. There are many variables including the level of disturbance, behavior of individual bears, topography, and darkness which could affect the degree to which grizzlies tolerate disturbance. However, it is reasonable to assume that other factors being equal, the probability of use by grizzlies, although possibly quite limited, is more likely to occur in "light gray" areas as compared to "dark gray" areas.

Thus, in identifying zones of influence, topographical features were used in some instances and not in others. Zones of disturbance were modified by site specific conditions like cover, relief, and topography. We were not aware of a more definitive process.

Approval of the Copper Gulch part of the project would seem to have the least potential for possible adverse effects on the grizzly. The proposed activities would occur within the core area of the helicopter flight corridor established for ASARCO's Chicago Peak Project in Copper Gulch. The major concerns for this operation would be the increased possibility of grizzly/human encounters associated with camping. Food odors could attract bears to the area, particularly during drill breakdown or other inoperative periods.